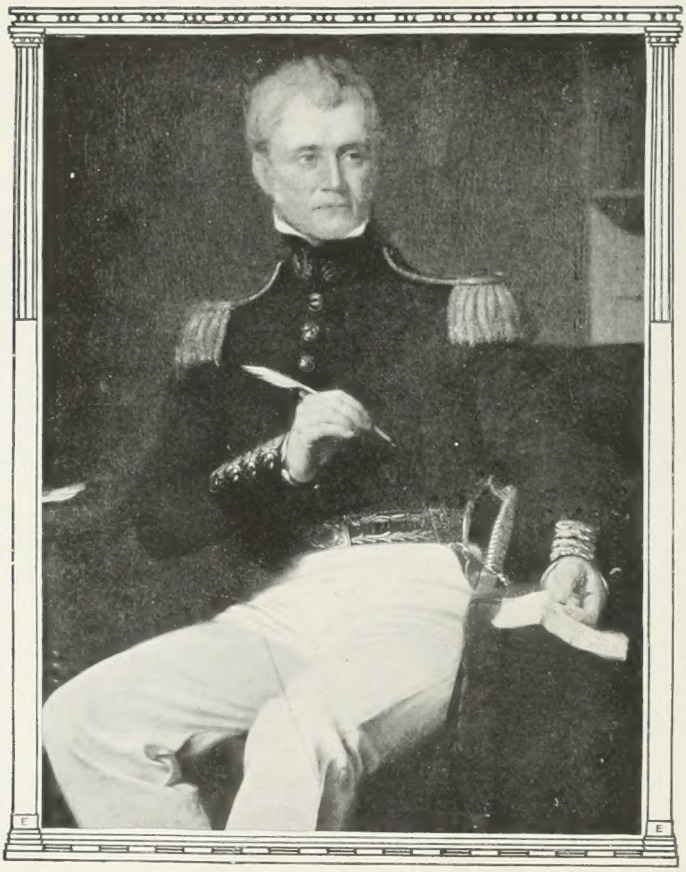


MAJOR SYLVANUS THAYER, CORPS OF ENGINEERS, SUPERINTENDENT
U. S. M. A., 1817–1833.

THE CENTENNIAL OF THE UNITED STATES MILITARY ACADEMY AT WEST POINT, NEW YORK.

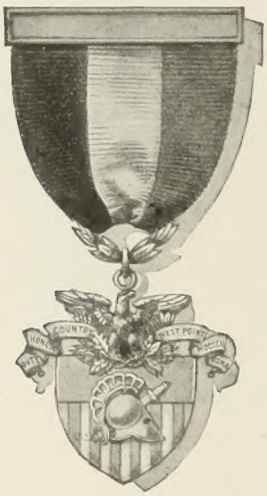
1802-1902

Volume I

ADDRESSES AND HISTORIES

WASHINGTON
GOVERNMENT PRINTING OFFICE
1904

BADGE OF THE ASSOCIATION OF GRADUATES OF THE UNITED STATES MILITARY ACADEMY



BADGE

THE ARMS OF THE UNITED STATES MILITARY ACADEMY SUSPENDED BY A RIBBON OF BLACK, GRAY, AND GOLD FROM A BAR BEARING THE DATE OF THE GRADUATE'S CLASS

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INTRODUCTION.

By Colonel ALBERT L. MILLS, U. S. A. (U. S. M. A., 1879),
Superintendent United States Military Academy.

THE occupation of West Point as a military post took place January 20, 1778, and has been continuous since that date. As early as October 1, 1776, Congress passed a resolution appointing a committee to prepare a plan for "A Military Academy at the Army." The result was the resolution of June 20, 1777, providing for a Corps of Invalids "to serve as a military school for young gentlemen previous to their being appointed to marching regiments." The Invalid Corps was organized in July, 1777; in 1778 a part of the corps was stationed at West Point; and in 1781, at the request of Washington, the corps was marched from Philadelphia to West Point, where an engineer school, a laboratory, and a library had been established in three separate buildings. In 1783, after the cessation of hostilities, Washington, having been called upon for his views as to the peace establishment, laid the matter of a Military Academy before his officers at Newburgh. He referred to it again in his message of December 3, 1793. The law of May 9, 1794, authorized the organization of a Corps of Artillerists and Engineers with two Cadets to a company, thus creating the grade of "Cadet" in the American Army. A school for the Artillerists and Engineers and for the Cadets attached to them was established, on the recommendation of Washington, by order, at West Point, in 1794. The destruction of its buildings by fire in 1796, however, caused its suspension. On July 20, 1801, the Secretary

H. Doc. 789, 58–2—vol 1——1

of War directed that all the Cadets of the Corps of Artillerists should report at West Point for instruction, and on September 1, 1801, a school was opened with four army officers and a civilian as administrators and instructors.

Washington was firmly convinced of the necessity for establishing a Military Academy, and it was due to his efforts, and those of other patriots of the Revolution, that the Academy was created by act of Congress approved March 16, 1802. The act authorized the President to organize and establish a Corps of Engineers to consist of five officers and ten Cadets, and provided that it should be stationed at West Point, in the State of New York, and should constitute a Military Academy. The Academy with ten Cadets present was formally opened July 4, the year of the act.

Acts of Congress, in 1802 and 1808, authorized forty Cadets from the artillery, one hundred from the infantry, sixteen from the dragoons, and twenty from the riflemen; few of these were appointed, and no provision was made for them at the Academy. In 1810 the Academy was deprived of nearly all means of instruction, and officers and Cadets had difficulty in obtaining their pay. During most of the year 1811, and a part of 1812, although war was imminent, academic and military instruction were practically abandoned. In March, 1812, the Academy was without a single instructor. Up to and including this time, 88 Cadets had been graduated; they had entered without mental or physical examination, at all ages from 12 to 34, and at any time of the year.

By act of Congress of April 29, 1812, the Academy was reorganized. The provisions of this act have furnished the general principles upon which the Military Academy has since been conducted and controlled; a more adequate corps of professors was authorized; a maximum of 250 Cadets was fixed; and the age and the mental requisites for admission were prescribed.

In 1817, under the provisions of the act of 1812, and the able superintendency of Major Sylvanus Thayer, Corps of Engineers, the present era in the Academy's history began.

Until 1843, a prescribed residence was not a legal qualification for appointment, but the selection of one Cadet from each Congressional district had grown to be customary. In this year the custom became the law, Congress prescribing that the Corps of Cadets should consist of one from each Congressional district, one from each Territory, one from the District of Columbia, and ten from the United States at large to be appointed by the President.

By acts of Congress approved June 6, 1900, and June 28, 1902, the Corps of Cadets as now constituted consists of one from each Congressional district, one from each Territory, one from the District of Columbia, two from each State at large, and forty from the United States at large, all to be appointed by the President and, with the exception of the forty appointed from the United States at large, to be actual residents of the Congressional or Territorial districts, or of the District of Columbia, or of the States, respectively, from which they are appointed. Under these acts, and under the apportionment of members of Congress according to the Twelfth Census, the maximum number of Cadets is 521.

The total number of graduates from 1802 to 1902, inclusive, is 4121.

The year 1902 marked the completion of the first century in the life of the Military Academy, which was established March 16 and formally opened July 4, 1802. The close of the academic year was decided upon as the most suitable time for commemorating the anniversary, and the occasion was celebrated with appropriate ceremonies on the 9th, 10th, and 11th days of June. Appended hereto is a programme

of the exercises. A feature of the review in honor of the President of the United States on June 11, not in the programme, was the bestowal by him of a medal of honor upon Cadet Calvin P. Titus, of the fourth class, for "gallantry at Peking, China, August 14, 1900, while a soldier of the Fourteenth United States Infantry."

This is the first medal of honor, so far as known to me, to be bestowed upon an undergraduate of the Military Academy, and the only one personally presented by the Commander in Chief of the Army and Navy of the United States. Graduation day, June 12, fittingly terminated the exercises. The diplomas of the graduating class were bestowed by the President; the members of the class were addressed by the Hon. Charles Dick, member of Congress, on behalf of the Board of Visitors, and were welcomed into the Army by the honorable Secretary of War and the Lieutenant-General Commanding.

The anniversary excited universal interest among graduates, who spared no effort to make it successful. Invitations to it were extended to the limit of securable accommodations at and near West Point, and it was a matter of great regret to all concerned that our means in this respect were not more ample, for the fact denied the Academy the pleasure of receiving and caring for many more of its friends and well-wishers. A large proportion of the invited guests were present to take part in the ceremonies, and cordial letters of congratulation were received from those whose engagements prevented their attendance.

The exercises were marked from first to last by cordiality and good will on every part. The addresses of the President and all the speakers gave unstinted appreciation to the record the Academy has made for itself, during one hundred eventful years of war and peace. It was also most gratifying to remark the great interest with which the whole country

joined in the celebration, as is abundantly shown in the reports of the proceedings by the newspaper press. This is especially pleasing, for the Cadets impartially represent every portion of the United States. Their records are bound up with the history of the whole country, and the celebration here was but the focus of rays collected from every region of our broad land.

If the impressive words of the honorable Secretary of War at the centennial anniversary are accepted, that "The Military Academy is more necessary now than one hundred years ago," general satisfaction should be felt with the institution's prospects in entering upon the second century of its work. The school has for its object the training of Cadets for the military service of our country. It is a school for the whole Army—not for any special arm. Its scholastic work covers a range of subjects connected with the many duties the educated American officer is expected and must be prepared to perform, and the ideal of its practical work is the graduation yearly of well-grounded young soldiers loyal to their duty and their country and trained to take up at once the work of subaltern officers.

Recent Congressional action will provide the school with an equipment for work as perfect in its essential requirements as experience can provide. While many thoughtful people believe the number of Cadets could, with advantage to the country, be larger, their number is such as to continue to insure the maintenance of high standards of duty and efficiency in the Army.

Finally, the school's faculty and instructors are composed of earnest, progressive officers, devoted to their work, and in full sympathy with the sentiments expressed by the president of the Association of Graduates in unveiling the tablet commemorating the first century in the Academy's life: "Let us all pledge ourselves to our country that the best efforts of

our lives shall be to make the record of the second century even more memorable than that of the first."

The official programme was as follows:

ALUMNI DAY, MONDAY JUNE 9, 1902.

AFTERNOON.

A luncheon for the Alumni in the assembly room of the Memorial Hall at half after 1 o'clock.

A meeting of the Alumni in the Thayer room of the Memorial Hall at 3 o'clock.

Order of the exercises.

I. The meeting called to order by the oldest graduate present (namely, Gen. John S. McCalmont of the class of 1842) as temporary chairman.
II. Prayer.
III. Music—Stars and Stripes—Sousa.
IV. An address by the president of the Association of Graduates.
V. Music—Tenting on the old Camp Ground.
VI. An address by a veteran of the Mexican war.
VII. Music—Benny Havens.
VIII. An address by a veteran of the civil war (Union).
IX. Music—Rally 'Round the Flag.
X. An address by a veteran of the civil war (Confederate).
XI. Music—Dixie.
XII. An address by a veteran of the Spanish-American war.
XIII. Music—The Star Spangled Banner.
XIV. The benediction.

EVENING.

An illumination of the Memorial Hall and the vicinity at half after 8 o'clock.

A reception by the president of the Association of Graduates and Mrs. Schofield, the Superintendent of the Military Academy and Mrs. Mills, in the Memorial Hall, from 9 until 11 o'clock.

FIELD DAY, TUESDAY, JUNE 10.

MORNING.

The annual athletic contests between the four classes of the Corps of Cadets on the parade at 10 o'clock.

AFTERNOON.

A baseball game between Yale University and West Point on the parade at 3 o'clock.

EVENING.

The graduation ball in the Memorial Hall at 9 o'clock.

CENTENNIAL DAY, WEDNESDAY, JUNE 11.

MORNING.

I. Military honors to the President of the United States, 10 a. m.

a. An escort to the quarters of the Superintendent of the Military Academy by the Corps of Cadets.

b. A review of the Corps of Cadets immediately thereafter.

II. A reception to the President of the United States by the Superintendent of the Military Academy at his quarters, after the review.

III. A luncheon for the invited guests and the Alumni in the assembly room of the Memorial Hall, at 1 o'clock.

AFTERNOON.

The invited guests and Alumni will assemble at the quarters of the Superintendent at a quarter to 3 o'clock to escort the President of the United States to the centennial exercises in the Memorial Hall.

Order of march.

I. The Corps of Cadets.

II. The President of the United States.

III. The invited guests.

IV. The Alumni, staff, former officers and cadets of the Military Academy.

Centennial exercises.

I. Prayer by the Chaplain of the Military Academy.
II. Music—Pilgrims Chorus.—Tannhauser.
III. An address of welcome to the invited guests by the Superintendent of the Military Academy.
IV. Music—Hands Across the Sea.
V. The introduction of the President of the United States by the Superintendent of the Military Academy.
VI. Music—Hail to the Chief.
VII. An address by the President of the United States.
VIII. Music—My Country.
IX. The unveiling of the commemorative tablet by the President of the Association of Graduates of the Military Academy.
X. Music—Reverie.—Schumann.
XI. An address by the orator of the day.
XII. Music—Hail Columbia.
XIII. An address by the Secretary of War.
XIV. Music—The Star-Spangled Banner.
XV. The benediction.

The "graduating parade" will take place at 7 o'clock.

EVENING.

A banquet in the mess hall at half after 8 o'clock.

There will be fireworks and an illumination of the post during the banquet.

GRADUATION DAY, THURSDAY, JUNE 12.

MORNING.

The graduation exercises of the class of 1902 at half after 10 o'clock.

It was decided to print as a permanent memorial of the jubilee of the Academy a volume to be distributed to official guests, to members of Congress, and to the graduates of the institution. The preparation of the volume was put in charge of Professors Larned, Tillman, and Wood, a committee of the Academic Board, and the editorial duties were confided to Doctor Holden, Librarian of the Academy. The

volume has been printed by order of Congress and is now published and distributed.

It contains—

I. The addresses of the President of the United States, the Secretary of War, and others before the official guests of the Academy June 11 and 12, 1902.

II. Addresses before the Association of Graduates June 9.

III. A series of chapters giving, in brief, the history of the Academy during the whole period of its existence, of the post of West Point during the Revolutionary period, and of the services of the graduates in military and in civil life. The illustrations and maps which accompany the text have been derived from many sources. Thanks are due to the Century Company, to Charles Scribner's Sons, to G. P. Putnam's Sons, to the McClure Company, to Mr. Charles O. Hall, to the editors of the Outlook, of the Cosmopolitan, Collier's Weekly, and of the American Review of Reviews for permission to print certain cuts from their publications. The cost of making the illustrations has been borne by a fund contributed by graduates in aid of the Centennial celebration.

The chapters have been written by graduates who represent nearly every arm of the service and also civil life. The writers have been invited to express their own judgments in their own way, so that the chapters are personal, not official. At the same time it is believed that they will be welcomed as the first comprehensive and adequate accounts of the very varied activities and achievements of our graduates in every walk of life. Taken together they present a view of its activity of which our country may well be proud.

The President of the United States has said in his address (June 11):

> This institution has completed its first hundred years of life. During that century no other educational institution in the land has contributed so many names as West Point to the honor roll of the nation's greatest

citizens . . . The average graduate of West Point during these hundred years has given a greater sum of service to the country through his life than has the average graduate of any other institution in this broad land.

Every graduate of the Academy is proud of these memorable words. We believe them to have been deserved in the past. We will do our best endeavor that they shall be true in the future.

HEADQUARTERS U. S. MILITARY ACADEMY,

July 1, 1903.

THE CENTENNIAL EXERCISES.

CADET CHAPEL (BUILT 1836).

PRAYER.

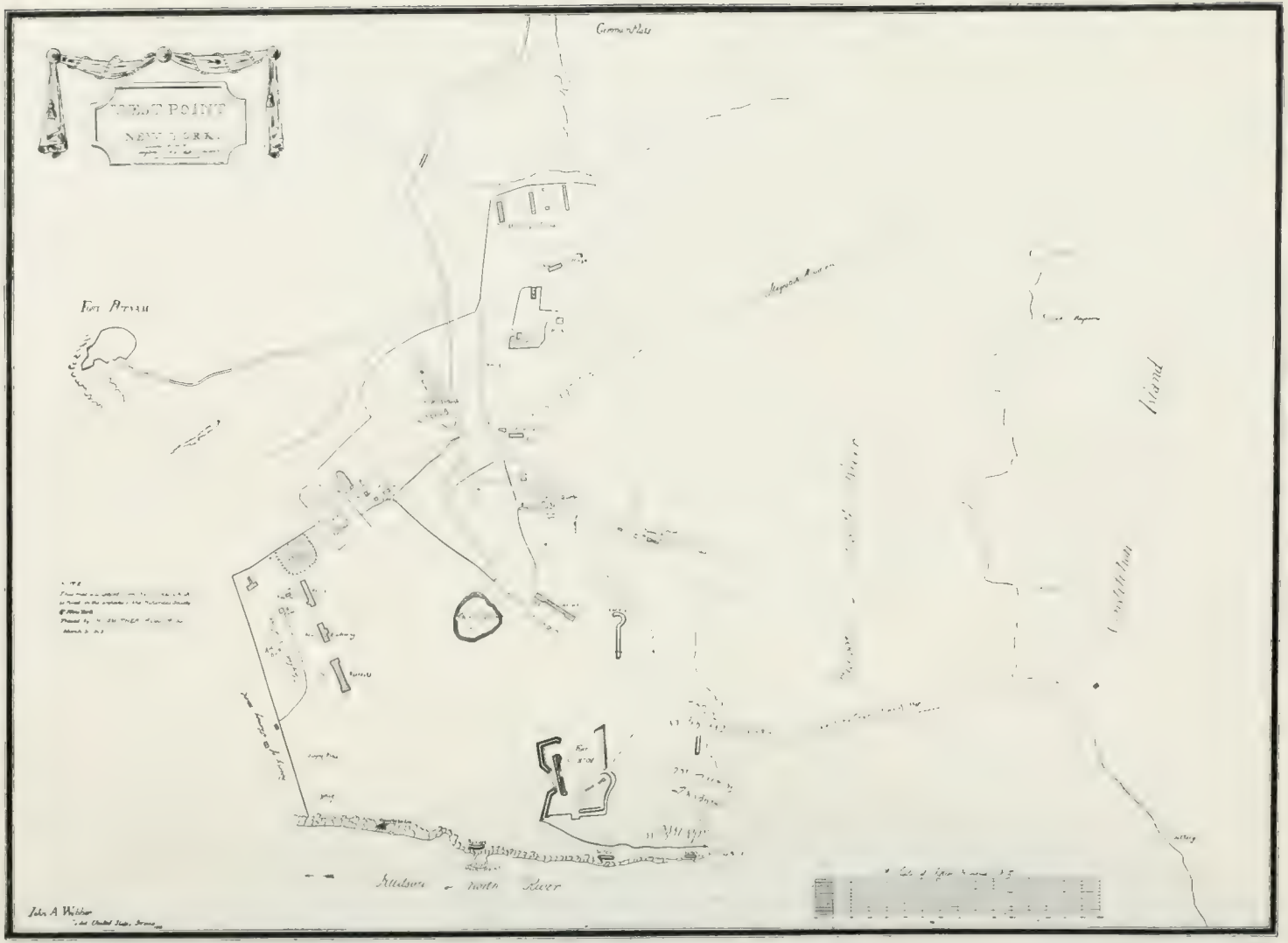
By Rev. HERBERT SHIPMAN, Chaplain, U. S. Military Academy.

LORD GOD OF HOSTS, before whose throne the nations stand, to whom Thou settest bounds that they may not pass, to whom Thou givest life and power that they may do Thy will on earth, in Thy sight a thousand years are but as a single day. We thank Thee that in our nation's day, brightening through the shadows of its dawn, through its morning mists, toward now its glorious noon, Thou hast been near us always. We thank Thee for those, our fathers, who leaning on Thy strength laid in faith our foundations true and strong; for those of a later day who, when doubts divided and human wisdom failed, dared ask for judgment in Thy high and solemn courts of war. We thank Thee for the faith that still in us the spirit of our fathers lives; for the faith that Thou art in the midst of them who are gathered in Thy name, not only in the stillness of Thy sanctuaries, but in the noise and shock of battlefields; that Thy right hand still guides the sword laid bare to raise the low or curb the oppression of the strong. For these things, as for all that Thou hast done and art doing for the land we love, we give Thee thanks; for not to us, but to Thy name, is all the glory.

We pray Thee that, as Thou hast made us a nation fit to do Thy will, there may ever be among us men able and glad to serve the nation best, and dare do the work Thou hast given us to do; and especially do we pray that Thy wisdom and strength may guide and defend him through whom the nation speaks its will, and all others in authority.

And as this day we remember those who lived and died for our country's life, its unity and its peace, may we, the living, be consecrated anew to the high principles which were theirs, that they may live again in us and rouse us to more active effort and to the nobler service of mankind. May we heed the silent yet solemn protest rising from their graves against all that is untrue, unworthy of the destiny Thou hast set before us. May we hear Thy voice above all life's tumult; may we see beyond all self-seeking, that the battle is to the strong—the strong in Thee—the final victory to him whose feet are swift to do Thy will; and so may these, Thy sons, ever be, wherever Thou shalt call them, the ministers of Thy justice, the guardians of that order which receives its sanctity from Thee, apostles and prophets of the nobler peace—Thy peace, which standeth in truth and righteousness triumphant.

We ask this in His name who was the gentlest and the bravest, the manliest and the holiest, who lived as man that He might consecrate our manhood and draw all men unto Him; who liveth now eternally with Thee, Oh One and Only God, the captain of our salvation and the source of all our strength, our Lord and Savior Jesus Christ.



MAP OF WEST POINT, 1815, BY CADET JOHN A. WEBBER. REDRAWN BY LIEUT. HENRY C. SMITHER, FIFTEENTH U. S. CAVALRY, U. S. M. A., 1897.

ADDRESS OF WELCOME TO THE INVITED GUESTS.

By the Superintendent of the Military Academy.

INFANTRY PRIVATE, 1783

MR. PRESIDENT AND HONORED GUESTS: It is with feelings of pride and gratification that the graduates of the United States Military Academy welcome you to West Point on the occasion of the one hundredth anniversary of the founding of our nation's military school; this welcome which they extend to you is not alone from those whom you see here to-day, but "from earth's wide bounds, from ocean's farthest coast," wherever the sons of this Academy are now sojourning, there goes out to you a most sincere and heartfelt greeting. We are deeply sensible of our obligations for your cooperation in making this anniversary what it is; especially are we sensible of our obligations to those who have left the pressing duties of responsible trust, and to those who have journeyed from foreign lands. We extend our grateful thanks for your presence, and we hope you may carry away pleasant recollections of your visit.

This season was selected for these exercises in preference either to the anniversary of the actual date of the founding of the school, March 16, 1802, or of its formal opening, July 4 of the same year, for the reason that, at this time more than at another, nature enhances with her handiwork the natural beauties of the historic place which has been from its birth

the home of the Military Academy. An added interest, it was felt, would be the annual exercises incident to the successful closing of the Cadet's academic career and to his entrance into the larger and more responsible sphere which he must fill, and which will test the soundness of his training here.

More than a century ago President Washington, in his last message to Congress, in dwelling with earnestness upon the utility of establishing a national military academy, said:

> The eligibleness of a military academy depends on that evident maxim of policy which requires every nation to be prepared for war while cultivating peace, and warns it against suffering the military spirit and military knowledge wholly to decay. However particular instances, superficially viewed, may seem exceptions, it will not be doubted by any who have attentively considered the subject, that the military art is of a complicated and comprehensive nature; that it demands much previous study, as well as practice, and that the possession of it in its most improved state is always of vast importance to the security of a nation. It ought, therefore, to be a principal care of every government, however pacific its general policy, to preserve and cultivate—indeed, in proportion as the policy of a country is pacific, and it is little liable to be called to practice the rules of the military art, does it become the duty of the government to take care, by proper institutions, that it be not lost. A military academy instituted on proper principles, would serve to secure to our country, though within a narrow sphere, a solid fund of military information which would always be ready for national emergencies, and would facilitate the diffusion of military knowledge as those emergencies might require.

Only two days before his death he wrote to Alexander Hamilton:

> The establishment of a military academy upon a respectable and extensive basis has ever been considered by me as an object of primary importance to this country, and while I was in the Chair of Government I omitted no proper opportunity of recommending it to the attention of the Legislature.

No one understood better than this great man, whose memory is honored by the whole world, both the character of his countrymen and the military institutions best suited to their circumstances. I leave it to historians to estimate the value of this school to the country and to recount its services to the nation in war and in peace. Again, in the name of all its graduates and sons, I thank you each and all for the kindly interest which has brought you here and extend to you a warm and cordial welcome as guests of the United States Military Academy.

INTRODUCTION OF THE PRESIDENT OF THE UNITED STATES.

By the Superintendent of the Military Academy.

IT WAS the good fortune of the Military Academy that its conception found favor in the eyes of the great and noble men who watched over the infancy and early growth of the Republic. That its establishment should have been proposed and advocated by the first President of the United States associates with it the great name of Washington and is an incentive to the patriotism and devotion to duty of its children.

From its foundation in 1802, the messages of the Presidents show that each appreciated its importance as a national institution and that each had a deep solicitude for its welfare and proper development. Praise of its work and influence was frequent and of increasing warmth as the structure of the institution grew in strength and symmetry into a definite and vigorous form, until it finally became a concrete part of the fabric of this nation, whose stable and sterling qualities it shared.

In view of such early words of approbation and encouragement, it is natural that we should ask: Have those bright promises of youth been realized in maturity; has the Academy fulfilled its high destiny as the years have advanced, and does it still deserve well of the Republic? It is peculiarly appropriate, therefore, that on this day, when we are gathered to celebrate the completion of the first century of the Academy's life and labors, we should hear an answer to these questions from the lips of the latest of that long line of distinguished

MAP OF WEST POINT, 1830, BY LIEUT. T. B. BROWN, THIRD U. S. ARTILLERY, U. S. M. A., 1826.

men who have been the Presidents of our Nation, and that we should have his estimate of the results accomplished by the Academy during these later years. In him we have a President well fitted to speak to us of the Academy's work in all of its phases. As a patriot he can judge whether the Academy has been true to its highest trust; as a statesman he knows its value as an integral part of our national fabric; as a student and scholar he is qualified to commend or condemn it from the purely educational view-point; and, lastly, as a soldier,

> Whose faith and truth
> On war's red touchstone rang true metal,

he can weigh its importance as a factor in the military forces of our beloved country.

Gentlemen, the Military Academy and its sons are honored to-day by the presence of our constitutional Commander in Chief, the President.

ADDRESS OF THEODORE ROOSEVELT, PRESIDENT OF THE UNITED STATES.

CAVALRY PRIVATE, 1901.

COLONEL MILLS, graduates of West Point, and you, the men and women who are drawn to them by ties of kinship, or by the simple fact that you are Americans, and therefore of necessity drawn to them:

I am glad to have the chance of saying a word to you to-day. There is little need for me to say how well your performance has squared with the prophetic promise made on your behalf by the greatest of Americans, Washington. This institution has completed its first hundred years of life. During that century no other educational institution in the land has contributed as many names as West Point has contributed to the honor roll of the nation's greatest citizens.

Colonel Mills, I claim to be a historian, and I speak simply in the spirit of one, simply as a reciter of facts, when I say what I have said. And more than that, not merely has West Point contributed a greater number of the men who stand highest on the nation's honor roll, but I think, beyond question, that, taken as a whole, the average graduate of West Point during this hundred years has given a greater sum of service to the country through his life than has the average graduate of any other institution in this broad land. Now, gentlemen, that is not surprising. It is what we had

a right to expect from this military university, founded by the nation. It is what we had a right to expect, but I am glad that the expectation has been made good. And of all the institutions in this country, none is more absolutely American; none, in the proper sense of the word, more absolutely democratic than this. Here we care nothing for the boy's birthplace, nor his creed, nor his social standing; here we care nothing save for his worth as he is able to show it. Here you represent, with almost mathematical exactness, all the country geographically. You are drawn from every walk of life by a method of choice made to insure, and which in the great majority of cases does insure, that heed shall be paid to nothing save the boy's aptitude for the profession into which he seeks entrance. Here you come together as representatives of America in a higher and more peculiar sense than can possibly be true of any other institution in the land, save your sister college that makes similar preparation for the service of the country on the seas.

This morning I have shaken hands with many of you, and I have met the men who stand as representatives of every great struggle, every great forward movement this nation has made for the last fifty-five or sixty years. The oldest among you—there are some still left who took part in the Mexican war, a struggle which added to this country a territory vaster than has changed hands in Europe as the result of all the wars of the last two centuries. I meet, when I see any of the older men among you, men who took part in the great civil war, when this nation was tried as in a furnace; the men who were called upon to do the one deed which had to be done under penalty of making the memory of Washington himself of little account, because if you had failed, then failure would also have been written across the record of his work. Finally, I see the younger men as well as the older ones;

the men whom I have seen myself taking part in a little war—a war that was the merest skirmish compared with the struggle in which you fought from '61 to '65, and yet a war that has had most far-reaching effects; not merely upon the destiny of this nation, but therefore upon the destiny of the world—the war with Spain.

It was my good fortune to see in the campaign in Cuba how the graduates of West Point handled themselves; to see and to endeavor to profit by their example. It is a peculiar pleasure to come here to-day, because I was at that time intimately associated with many of these, your graduates, who are here. On the day before the San Juan fight, when we were marched up into position, the officers with whom I was lost connection with the baggage and food, and I for supper that night had what Colonel Mills gave me. And the next morning Colonel Mills was with another West Pointer, gallant Shipp, of North Carolina. The next morning we breakfasted together. I remember well congratulating myself that my regiment, a raw volunteer regiment, could have to set it an example, men like Mills and Shipp, whose very presence made the men cool; made them feel collected and at ease. Mills and Shipp went with our regiment into action. Shortly after it begun Shipp was killed and Colonel Mills received a wound from which no one of us at the time dreamed that he would recover. I had at that time in my regiment as acting second lieutenant a cadet from West Point. He was having his holiday; he took his holiday coming down with us, and just before the assault he was shot, the bullet going in, I think into the stomach, going out the other side. He fell over, and as we came up I leaned over to him, he said "All right, Colonel, I am going to get well." I didn't think he was; but I said, "All right, I am sure you will," and he did; he is all right now.

There was never a moment during that time, by day or by

night, that I was not an eyewitness to some performance of duty, some bit of duty well done, by a West Pointer, and I never saw a West Pointer failing in his duty. I want to be perfectly frank, gentlemen. I heard of two or three instances—you can not get in any body of men absolute uniformity of good conduct; but I am happy to say that I never was an eyewitness to such misconduct. It was my good fortune to see what is the rule—what is the rule with only the rarest exception—the rule of duty done in a way that makes a man proud to be an American, the fellow-citizen of such Americans.

Your duty here at West Point has been to fit men to do well in war. But it is a noteworthy fact that you also have fitted them to do singularly well in peace. The highest positions in the land have been held, not exceptionally, but again and again by West Pointers. West Pointers have risen to the first rank in all the occupations of civil life. Colonel Mills, I make the answer that a man who answers the question must make when I say that while we had a right to expect that West Point would do well, we could not have expected that she would have done so well as she has done.

And now, in closing, I want to say one word to those who are graduating here, and to the undergraduates as well. I was greatly struck the other day by an article by one of your instructors, himself a West Pointer, in which he dwelt upon the changed conditions of warfare, and the absolute need that the man who was to be a good officer should meet those changed conditions. I think it is going to be a great deal harder to be a first-class officer in the future than it has been in the past. In addition to the courage and steadfastness that have always been the prime requirements in a soldier, you have got to show far greater fertility of resource and far greater power of individual initiative than has ever been necessary before if you are to come up to the highest level of

officer-like performance of duty. As has been well said, the developments of warfare during the last few years have shown that in the future the unit will not be the regiment nor the company nor troop; the unit will be the individual man. The Army is to a very great extent going to do well or ill according to the average of that individual man. If he does not know how to shoot, how to shift for himself, how both to obey orders and to accept responsibility when the emergency comes where he won't have any orders to obey, if he is not able to do all of that, and if in addition he has not got the fighting edge, you had better have him out of the Army; he will be a damage in it.

In a battle hereafter each man is going to be to a considerable extent alone. The formation will be so open that the youngest officer will have to take much of the responsibility that in former wars fell on his seniors, and many of the enlisted men will have to do most of their work without any supervision from any officer whatsoever. The man will have to act largely alone, and if he shows a tendency to huddle up to somebody else his usefulness is pretty near at an end. He must draw on his own courage and resourcefulness to meet the emergencies as they come up. It will be more difficult in the future than ever before to know your profession, and more essential also; and you officers, and you who are about to become officers, if you are going to do well, have got to learn how to perform the duty which, while become more essential, has become harder to perform. You want to face the fact and realize more than ever before that the honor or the shame of the country may depend upon the high average of character and capacity of the officers and enlisted men and that a high average of character and capacity in the enlisted men can to a large degree only be obtained through you, the officers; that you have got to devote your time in peace to bringing up the standard of fighting efficiency of

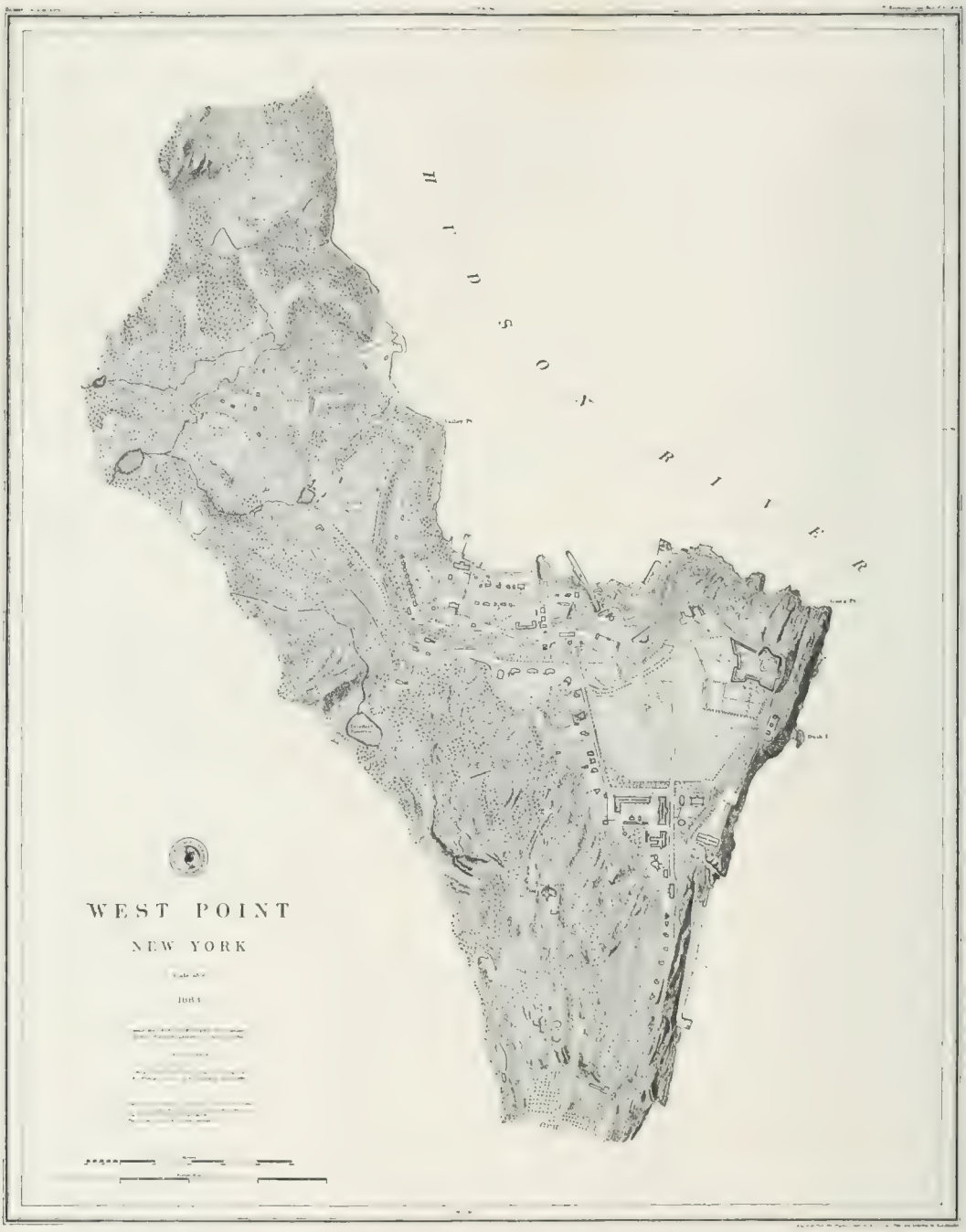
the men under you, not merely in doing your duty so that you can't be called to account for failure to perform it, but doing it in a way that will make any man under you abler to perform his.

I noticed throughout the time that we were in Cuba that the orders given and executed were of the simplest kind and that there was very little maneuvering, practically none of the maneuvering of the parade ground. Now I want you to weigh what I say, for if you take only half of it, you will invert it. I found out very soon in my regiment that the best man was the man who had been in the Regular Army in actual service, out in the West, campaigning on the Plains. If he had been a good man in the Regular Army in actual service on the Plains, he was the best man that I could get hold of. On the other hand, if he had merely served in time of peace a couple of years in an Eastern garrison, where he did practically nothing outside of parade grounds and barracks, or if he had been in an ordinary national guard regiment, then one of two things was true; if he understood that he had only learned 5 per cent of war, he was 5 per cent better than anyone else, and that was a big advance; but if he thought he had also learned the other 95 per cent, he was worse than anyone else.

I recollect perfectly one man who had been a corporal in the Regular Army; this young fellow joined us sure he knew everything, confident that war consisted in nice parade-ground maneuvers. It was almost impossible to turn his attention from trying the very difficult task of making my cowpunchers keep in a straight line to the easier task of training them so that they could do the most efficient fighting when the occasion arose. He confused the essentials and the non-essentials. The non-essentials are so pretty and so easy that it is a great temptation to think that your duty lies in perfecting yourself and the men under you in them. You have got

to do that too, but if you only do that you won't be worth your salt when the day of trial comes.

Now, gentlemen, I do not intend to try to preach upon the performance of your duties here to you. It has been your special business to learn to do that. I do ask you to remember the difference there is in the military profession now from what it has been in past time; to remember that the final test of soldiership is not excellence in parade-ground formation, but efficiency in actual service in the field, and that the usefulness, the real and great usefulness, in the parade ground and barracks works comes in its being used not as an end, but as one of the means to an end. I ask you to remember that. I do not have to ask you to remember what you can not forget—the lessons of loyalty, of courage, of steadfast adherence to the highest standards of honor and uprightness which all men draw in when they breathe the atmosphere of this great institution.



MAP OF WEST POINT, 1883, BY THE UNITED STATES COAST AND GEODETIC SURVEY.

INTRODUCTION OF THE PRESIDENT OF THE ASSOCIATION OF GRADUATES BY THE SUPERINTENDENT OF THE UNITED STATES MILITARY ACADEMY.

THE Association of Graduates of the United States Military Academy is a bond of union between her sons and their alma mater. The aims and limitations of this association are set forth by the following articles of its constitution:

"Article II.—The object of this association shall be to cherish the memories of the Military Academy at West Point, and to promote the social intercourse and fraternal fellowship of its graduates.

* * * * * * *

"Article IV.—Political, or any other discussions foreign to the purposes of the association, as set forth in this constitution, or any proceedings of such a tendency, are declared inimical to the purposes of this organization, and are prohibited."

It is altogether fitting and proper that the tablet which is to commemorate the first century in the life of the Academy should be unveiled by the Association of Graduates in the person of its representative and president. It is especially appropriate and a most fitting coincident that the chosen president of the association should be to-day a distinguished soldier and statesman who has shed luster upon the Academy, both in war and in peace. The sole survivor of the great army commanders who brought to a successful close the memorable war for the Union; the Secretary of War who, after that desperate conflict, reorganized our Army; the diplomatic representative of his country who brought to a

successful issue matters of serious import to this continent; a former Superintendent of the Military Academy and a former commanding general of our Army, he is to-day in rank the senior living graduate and the revered and honored head of the association.

Gentlemen, I take pleasure in presenting Lieut. Gen. John M. Schofield.

UNVEILING OF THE COMMEMORATIVE TABLET BY THE PRESIDENT OF THE ASSOCIATION OF GRADUATES OF THE MILITARY ACADEMY.

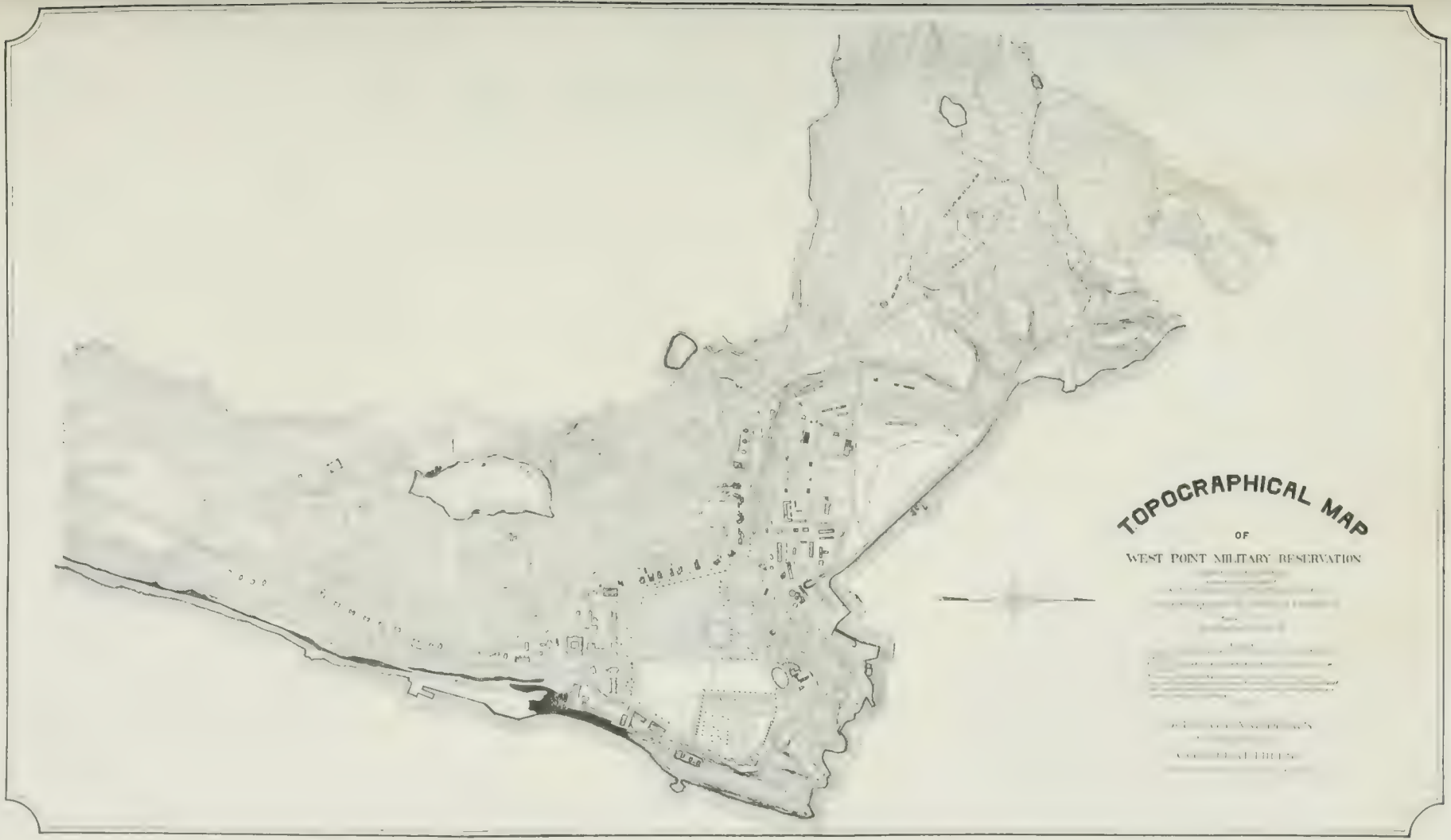
ADDRESS.

Lieutenant-General SCHOFIELD, U. S. Army, Retired (U. S. Military Academy, 1853).

FELLOW GRADUATES: The tablet which we are about to unveil commemorates the completion of the first century of the Military Academy. Let us all pledge ourselves to our country that the best efforts of our lives shall be to make the record of the second century even more memorable than that of the first.

INTRODUCTION OF THE ORATOR OF THE DAY BY THE SUPERINTENDENT OF THE UNITED STATES MILITARY ACADEMY.

THAT many of our great soldiers were sons of this school is known to most of our countrymen. It is not so well known, however, that many of her sons have borne in the paths of peace no less distinguished and conspicuous parts in the task of developing the resources of our country. Aside from their share in the Army's work in opening the continent to settlement, graduates of this school surveyed the early railway routes of the country, located the lines, constructed them, and often operated the completed roads. The General Government lent their services to assist in carrying out a system of internal improvements upon which the unprecedented development of the country during the first half of the century was dependent. What is true of the land routes is, in a large measure, true of our waterways. Many of the great canals were planned by the officers and graduates of this school. Harbors and light-houses planned and built by them make the navigation of our seas and lakes secure. The public domain is divided into homesteads by their system. In office, as President, Cabinet ministers, ambassadors, Congressmen, governors of States, and in municipal stations; as college presidents, in the manufactories, in the countinghouse, at the bar, in the pulpit, and as authors, they have done honor to the Academy and have contributed to the prosperity and influence of the nation. In the arts of peace, no less than in those of war, they have thus formed an organic part of



TOPOGRAPHICAL MAP OF WEST POINT, 190

the community of their fellow-citizens and have well served the public.

The son of West Point chosen by her to speak this day for his alma mater has served conspicuously as a soldier and as a citizen. He was four times brevetted for gallant and meritorious service in battle. He won the confidence and was the trusted aid-de-camp of that great commander, General Grant. In peace, in the construction, operation, and executive control of railways, and in letters, he has won distinction, and he is again in his country's public service as its representative to one of the world's great powers. It is a peculiarly felicitous coincidence that the orator of the United States Military Academy at the celebration of the first century of its existence should be our ambassador to that great and chivalrous nation to whose generous aid and assistance our country is so greatly indebted in its struggle for independence, and whose gallant soldiers were our comrades in the first years of the existence of our Army.

I have the honor, gentlemen, of introducing the orator of the day, Gen. Horace Porter, LL. D., Ambassador to France.

ADDRESS BY THE ORATOR OF THE DAY,

General HORACE PORTER (late U. S. Army), Ambassador of the United States to France (U. S. Military Academy, 1860).

SINCE the foundation of the United States Military Academy upon the historic spot on which to-day this vast concourse of visitors is assembled, the dial hands of the celestial clock record a century's flight. Upon the centennial of the birth of this devoted child of the Nation, she stands with outstretched hands to press the cup of greeting to the lips of all who come to pay her homage and, with natural fondness, bids her sons to return to her after the trials and vicissitudes of their life's career and once more repose their heads upon her bosom.

It is in every sense an ideal site on which to have founded an institution to teach the science and the art of war. Here the Academy sits enthroned in the fastness of the legendary Highlands; the cold, gray, rugged rocks which form her battlements are symbolic of the rigor of the discipline exacted of her children; her towering hills seem to lift man nearer to his God; the mist-laden storm clouds may lower above her, but they break upon her crags and peaks as hostile lines of battle have so often broken upon the sword points of her heroic sons. Her abode is incomparably beautiful at all hours and in all seasons. At one time we find her mountains reverberating and her plain trembling with the thunder of her guns, as their volleys rend the air in mimic warfare, or, as with their crimson breath they utter their notes of greeting to an illustrious soldier-President who honors her imposing fete day by his distinguished presence. At another time stillness rules her camp; the snowy whiteness of her

tents glistens in the golden light of a midsummer moon, the prevailing silence is broken only by the cadenced footfalls of her trusty sentinels, or the rippling of the waters of the noble stream which flows at her base, bearing to the sea those great argosies of commerce which measure a nation's material prosperity.

As we stand here to-day a hundred years of history pass in review before us, and we would fain light the torch of memory and count the brilliant beads of recollection. When our ancestors threw down the gauntlet to the mother country and resolved to conquer the right to form a government of their own, able leaders were found who had gained a valuable experience in battles with savage tribes and especially in the French and Indian wars, but there was a total lack of officers who had received a military education, and drill masters for our troops were eagerly sought among the trained soldiers of Europe. This want led our statesmen, at an early day, to consider the question of establishing a training school for officers of future armies. Washington favored West Point, which had been so closely identified with his military career, as the most appropriate site for such an institution. During his second administration, in 1794, a military school was located here, but in 1796 the building was destroyed by fire and for several years the instruction was suspended. In Washington's Farewell Address, that immortal document, well described as unequaled by any composition of uninspired wisdom, he formulated a memorable maxim in the words:

To be prepared for war is one of the most effectual means of preserving peace.

Two days before his death in 1799, he wrote to Hamilton a letter, probably the last one his illustrious hand ever penned, saying—

The establishment of a military academy upon a respectable and extensive basis has ever been considered by me as an object of primary

importance in this country, and while I was in the Chair of Government I omitted no proper opportunity of recommending it to the attention of the Legislature.

Thus this infant of the State received at its baptism Washington's dying benediction.

The present permanent Academy was founded in 1802. The class that year contained 2 cadets. During the ten years following the average number was 20. We might say of the cadets of those days what Curran said of the books in his library—"not numerous, but select." The instruction was then as meager as the rations, and this newborn child was so poorly cared for that it was scarcely provided with decent swaddling clothes. In fact, the necessity of the school came to be seriously questioned. But then occurred the war of 1812; the institution received greater consideration, was more efficiently organized, and the maximum number of cadets was fixed at 250. The golden age of the Academy, however, began with the advent as Superintendent of a soldier who seemed especially created for the position, that man of honored memory, crowned with the title of "Father of the Academy," Col. Sylvanus Thayer. He brought to his field of usefulness a broad scholarship, a ripe experience, an unerring judgment. In his work it was the very magnitude of the task that seemed to call forth the powers which mastered it. While upon an official mission in Europe he had culled from the most noted war schools of the Old World the best features of their curriculum, and afterwards introduced them here. In the sixteen years of his labors he raised the institution from an elementary school to the grade of the highest academies. Among West Point's graduates a test of fidelity is the veneration in which they hold his name.

After the close of the War of 1812, when the drums had

beaten the glad notes of victory and the bugles had sounded a truce, there was a period of some thirty years in which the colors were furled and swords were sheathed. Again a lack of appreciation of the work of the Academy prevailed, and there was much grumbling at the expense it entailed. But then came the war with Mexico. An adventurous campaign was to be undertaken in an unknown land, where skill and science were to play an important part, and her graduates were gladly sought to complete the organization of the expeditionary army. The encomiums passed upon them by their commanders for the practical manner in which they applied their scientific knowledge and their devotion and personal gallantry in that triumphal march from the Gulf to the Halls of the Montezumas silenced all objectors, and convinced the most reluctant that the living had justified their schooling by their deeds; that, if one can barter blood for gold, the dead had amply repaid the cost of their education with their lives.

At different periods campaigns against hostile Indian tribes—the most distasteful of all warfare—tested the powers of our little Army. In 1861 the Temple of Janus again threw wide its portals, and the nation entered upon the most appalling struggle that the New World has ever known. For four years the arts of peace gave way to the science of destruction, blood flowed as freely as festal wine, and the high carnival of slaughter reigned until the record of the carnage staggered humanity. West Point's graduates in that war, from leaders of armies to commanders of companies, by their brilliant feats of arms and conspicuous display of American manhood, challenged the admiration of the world.

In subsequent years an attack was made again upon the Academy. A Representative in Congress proposed to abandon

it and sell the property. The answer made to him was in substance:

> There never was but one American who tried to sell West Point, and God in his Providence did not permit him to succeed. His name was Benedict Arnold.

In the war with Spain West Point again proved her usefulness. Her officers bore an honorable part in liberating an oppressed people, lighting their watch fires even in the lands of the antipodes, dipping the fringes of their banners in the waters of Oriental seas, setting our country a century ahead in history and raising it to the proud distinction of a world power.

In this contest the blue and the gray of the previous struggle were blended into one harmonious, patriotic color, and men whose opinions had once made them foes again marched shoulder to shoulder beneath the folds of the red, white, and blue, that banner which represents a trinity of colors—a union of loyalty.

The most recent prominent event in the annals of the Academy has been the donation of the majestic building, with its chaste lines and graceful proportions, the hospitality of which we to-day enjoy. The donor, by this act of princely generosity, gained title deeds to gratitude of which he can never be dispossessed. It has been said that gratitude is a debt in which it is left to the debtor to pay in whatever coin he pleases. Alas! we have no coin save the fervent tribute of thankful hearts with which to pay the priceless debt of gratitude we owe to General George W. Cullum.

The system pursued in the conduct of this Academy is in perfect keeping with the spirit of our liberal institutions. The equal participation of all the States and Congressional districts in the nomination of Cadets, their selection without regard to race, religion, color, wealth, or station, and their impartial examinations, in which the names they bear exert

no more influence on the result than the numbers which designate them, are methods as democratic as the most liberal-minded could desire. The fact that during the past century less than one-half of those who entered were graduated shows an instruction as thorough as the most exacting could demand. Here every Cadet must stand on his own individual merits. He who would be called Thor must be able to wield Thor's battle-ax; he who would be called Ulysses must be able to bend Ulysses's bow.

It has been asked why impart practically the same education to all Cadets, to those destined for the line as well as for the scientific corps? It is because it is believed that the mental discipline, powers of investigation, and accurate methods of thought requisite in solving difficult problems in the higher branches of science are the same qualities which are necessary in planning campaigns against wily savage tribes or conducting battles against trained armies.

An ancient writer has said: "We fatten a sheep on grass not in order to obtain a crop of hay from its back, but so that it may feed us with its mutton and clothe us with its wool." In like manner we train a soldier in science, not with the expectation that he will use an equatorial in getting the range of an advancing battle line, or ascertain his own whereabouts by finding astronomically the longitude of his post by means of lunar culminations, or frighten away an enemy by shaking a table of logarithms at him, terrifying as those figures are, but in order that he may have the general powers of his brain fully developed, be able to concentrate his thoughts, to reason logically, to grasp with precision the difficult problems of a campaign and thus be the better prepared to lead men and to gain battles for the Republic. The fight may last but a day, the training to win it may require many toilsome years. A bicyclist, with a broken machine, stopped at a country blacksmith's to have it mended. The workman

said his charge was a dollar—twenty-five cents for the job and seventy-five cents for knowing how to do it. Battles should be won first with the brain, then with the sword. Men should be taught not only how to stop bullets but how to direct them. Where human life is at stake, we want duels, not butcheries; victories, not excuses. It is quite certain that future successes in war will depend less on numbers and more on discipline, the cultivation of the morale of the soldier, improved weapons, celerity of movements, and an intelligent application of the study of logistics.

It is conceded that no student can successfully master a subject unless his mind becomes duly interested in it. To produce good music an instrument must be in tune. The student who here studies the art of war finds himself in a purely military atmosphere, and feels all the stimulus of his surroundings. About this region, celebrated for its strategic importance, there cluster the most inspiring memories of the war of independence, which constituted the heroic age of the Republic. Here invading armies were checked, hostile fleets were barred, treason was baffled. Here flows the historic Hudson, rich in precious revolutionary reminiscences. From the unequal battle of Harlem Heights to the triumphant field of Saratoga, yonder stream, throughout its entire length, is studded with beacon lights of liberty. Upon the plain are displayed the trophies of former wars; upon the giant rocks are graven the names of victorious battles; pendant on the building's walls are tablets and portraits which recall the record of imperishable deeds and perpetuate names which deserve to be immortal. Here statues are erected to commemorate men who lived believing in their country, who died that their faith might be fulfilled. The mute eloquence of their monuments will plead for equal sacrifice should war again threaten the nation's life, for example is stronger than precept, and patterns are better followed than rules. It

would be a recalcitrant cadet indeed who, under such circumstances, could fail to be imbued with an absorbing interest in the study of the profession of his choice.

It may be asked whether an education amid such surroundings may not make men lovers of war and anxious to taste its experiences. There is little fear of such a result. In this country a soldier is no longer respected if he fails to realize that war should be undertaken only in the interest of peace, and that a nation's prosperity depends upon public tranquillity. He knows full well that a people can be military without being warlike—that a government can be progressive without being aggressive. It was one of our most combative commanders in the field who uttered the famous aphorism: "Let us have peace," and whose distaste for war was so pronounced that, in after life, he never attended a review of troops, even when tendered in his special honor by the great military powers of Europe. Washington, after having experienced the horrors of war, fully appreciated the piping times of peace, when soldiers may turn their battle-axes into billhooks and their helmets into beehives, and yet he never failed to put himself on record in favor of the maintenance of an adequate army. For example, when in convention a delegate moved that the size of the Army should never be allowed to exceed 5,000 men, the great Founder of the Republic, with a display of ready wit which surprised his colleagues, killed the motion by offering an amendment prescribing that no foreign power should be allowed to invade the country with more than 3,000 men. An army may be dangerous when wielded by an arbitrary sovereign, but never when directed by a sovereign people.

The true soldier regards an army as serving the same purpose to the country as the lightning rod to the house, which reaches out, not to attract the lightning but to meet it when it strikes, disperse its forces, and stay the ruin it would work.

Upon our national arms the American eagle is represented as holding in one talon the olive branch of peace, in the other the shafts of war. He leaves to his adversaries which to choose.

No scholar can claim a monopoly of knowledge or perfection in learning. That would be mere pedantry; and Addison tells us that "Pedantry in learning is like hypocrisy in religion—a form of knowledge without the power of it." There are two means of acquiring an education—in the schools and in the great university of experience. Fortunately for the prosperity of nations and the peace of the world, we do not have continual wars in which to instruct our officers, and so we give an education in the schools, making it as practical as possible.

In future, as in past wars, the great bulk of our Army will always be composed of volunteers, those patriotic types of American manhood who, at the call to arms, quit their peaceful avocations, sacrifice their material interests, and rally to the defense of their country's standard. They receive their valuable but hard-learned lessons in the field and even in the presence of the enemy. The graduates from their ranks have furnished to the Army some of its most distinguished officers. The cordial and efficient cooperation of these two great branches of the Service has everywhere brought success to our arms. I have no patience with occasional writers who would make it appear that there are dissensions and discord between these two bodies battling in the same cause. It is a common practice for volunteer organizations to apply for Regular officers to command them, while the Regulars have constantly sought commissions in the Volunteers. In the field inseparable ties of true comradeship have been formed among them, for as iron is welded in the heat of the forge, so are friendships welded in the heat of battle. Anyone in either of these two honorable branches of the

Army who would be guilty of petty jealousy or half-hearted cooperation would be unfit for the Service to which he belonged and unworthy of the name of soldier.

This Academy had its birth and grew to manhood in the most marvelous century of recorded time, an age in which the advance of civilization and the triumphs in useful inventions and scientific discoveries inspire us with the grandeur of events and thrill us with the majesty of achievement. During this eventful period there were graduated 4067 Cadets. They have displayed their devotion upon countless battlefields and attested their usefulness in all the civil walks of life—in science and art, in trade and commerce, in literature and oratory, in theology, law, diplomacy, and statesmanship, from the modest engineer to President of the Republic. Nearly all who entered the Army have been disbursing officers in some capacity or other, from post treasurer to Paymaster-General, and with such scrupulous fidelity have the hundreds—perhaps thousands—of millions intrusted to them been accounted for that those who have ever been charged with peculation can be numbered on the fingers of one hand. Time does not permit us to recount their services. To select for special comment, even the more illustrious, would be to make invidious distinction; to mention all who have efficiently served the State, would be to call the roll of graduates. They need no eulogist, their services attest their worth. They did their duty and trusted to history for their meed of praise.

Of the total of 4067 graduates, 238 have fallen, killed or mortally wounded on the field of battle. In the trials of the self-sacrificing profession in which they cast their lot, they had to learn that "all hours wound—the last one kills." The record of West Point's heroic dead is inexpressibly sad; it is incomparably glorious. The story of their deeds rises to the sublimity of an epic. They honored the

age in which they lived, and future generations will read with pride the inscription on their tombs. The world can better appreciate their services since they have fallen, and the historian has had time to record their achievements. A tree is best measured when it is down. When La Tour d'Auvergne, who by his matchless deeds of valor gained the proud title of the First Grenadier of France, finally fell with his face to the foe, pierced by the enemy's bullets, Napoleon issued an order prescribing that this soldier's name should be carried on the active list, and to this day the sergeant of the company to which he belonged calls "La Tour d'Auvergne," and the color bearer answers "Mort au Champ d'Honneur." If the roll of West Point's graduates were called to-day answer could be made, not for one but for hundreds, "Dead on the field of honor."

I know that I voice the sentiments of every graduate, every officer of the Army, and every patriotic citizen when I express the profound acknowledgments and the deep sense of obligation due to all who have been instrumental in procuring the recent liberal appropriations from a generous Congress for enlarging and improving the Academy, with a view to keeping pace with our growing population, and in order that the efficiency of the institution may increase and multiply and its usefulness be greater even in the coming ages than in the century which is closing. In these names I include those eminent statesmen whose intelligent foresight has been so important in guiding national legislation, the honored Secretary of War, the "organizer of victory," the Carnot of this administration, the able Superintendent of the Academy whose superb courage on the field is matched by his rare powers of administration, and all those associated with him, and the officers of the Army holding high positions in Washington, who, in cases where they are not enrolled as graduates have been as faithful and devoted to the interests of the

institution as if they had been reared within its walls. Conspicuous among the latter I would name the distinguished Adjutant-General of the Army.

And now a word to the Corps of Cadets, the departure of whose graduating class marks the close of the first century of the Academy's life. The boy is father to the man. The present is the mold in which the future is cast. The dominant characteristics of the cadet are seen in the future general. You have learned here how to command, and a still more useful lesson, how to obey. You have been taught obedience to the civil as well as to the military code, for in this land the military is always subordinate to the civil law. Not the least valuable part of your education is your service in the cadet ranks, performing the duties of a private soldier. That alone can acquaint you with the feelings and the capabilities of the soldiers you will command. It teaches you just how long a man can carry a musket in one position without overfatigue, just how hard it is to keep awake on sentry duty after an exhausting day's march. You will never forget this part of your training. When Marshal Lannes's grenadiers had been repulsed in an assault upon the walls of a fortified city, and hesitated to renew the attack, Lannes seized a scaling ladder and rushing forward, cried: "Before I was a marshal I was a grenadier, and I have not forgotten my training." Inspired by his example, the grenadiers carried the walls and captured everything before them.

Courage is the soldier's cardinal virtue. You will seldom go amiss in following General Grant's instructions to his commanders, "When in doubt move to the front." Modesty should go hand in hand with valor. Never underrate yourself in a battle, never overrate yourself in a dispatch. When clothed with authority, avoid everything which savors of puppyism, an evil sometimes bred by power, and shun as well a spirit of dogmatism, which Johnson said is only

puppyism grown to maturity. When you are sure that you are right, do not be disarmed by unjust criticism. Mankind is divided into two classes, those who go ahead and do something and those who sit back and criticise them for not doing it better. You cannot make all men think alike. You might as well try to synchronize the clocks of Charles the Fifth. Censure is often the concomitant to success. Ostracism was the Greeks' reward for popularity; derision and caricature pursued the recipient of a Roman triumph. Even at the present day, in a land whose boast is justice, and among a people whose patent of manhood is their sense of fair play, while the American soldier, by his fidelity, his manly bearing, his matchless gallantry has earned the right to stand with head covered and with feet sandaled in the presence of the proudest warriors of foreign lands, at home the envenomed shafts of slander are hurled at him from behind his back, but they have not even pierced the khaki of his uniform. When the authors of these baseless calumnies are moldering in unmarked and forgotten graves, the patriotic American people will be searching for monumental marble white enough and pure enough on which to engrave the names of our heroes in the distant Philippines.

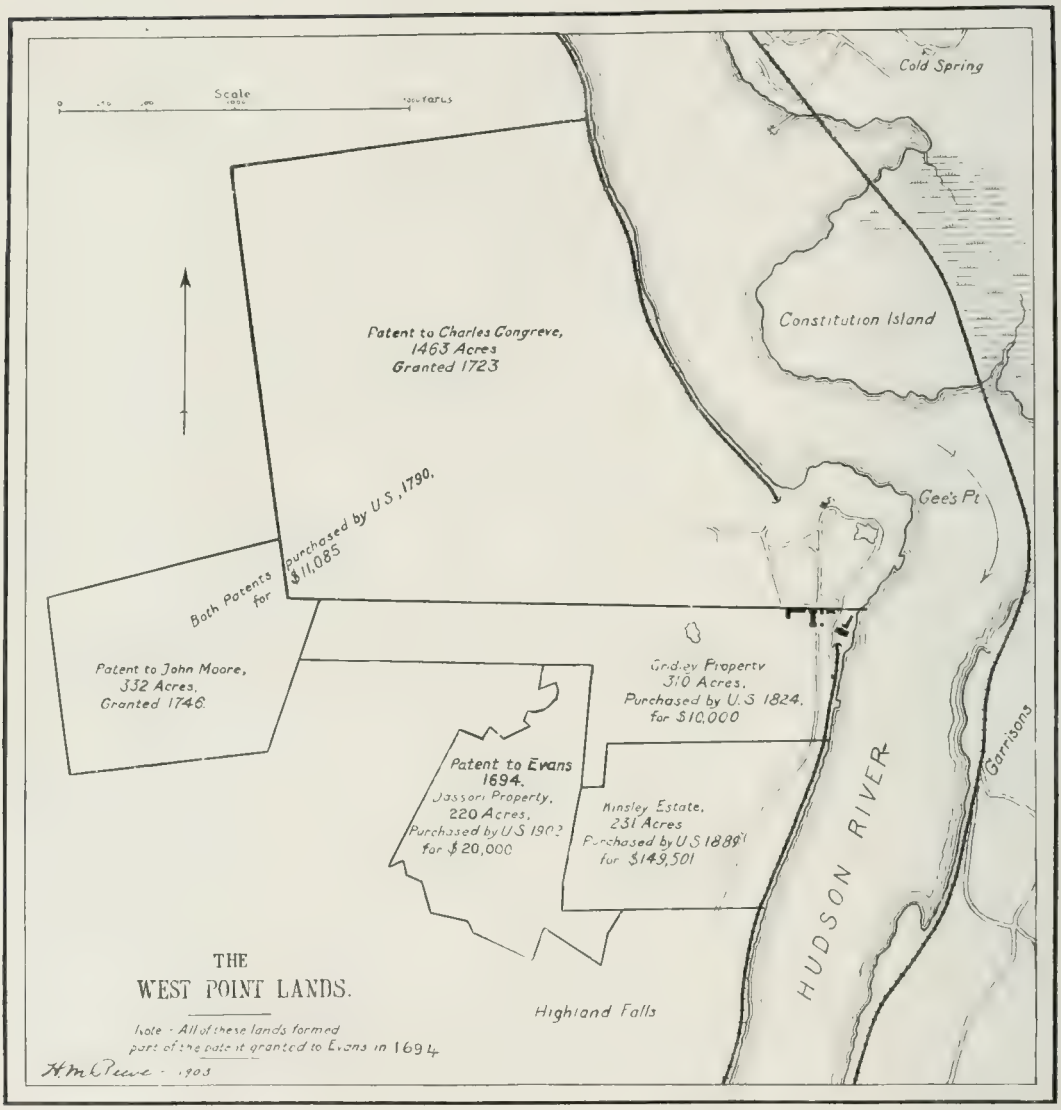
In this institution the flag of your country is kept constantly in view. It is not simply a piece of bunting which can be purchased for a few shillings in the nearest shop; it is not a mere cluster of brilliant colors with which to decorate a window for holiday display; it is the emblem of dignity, authority, power. Insult it, and millions will spring to its defense, resolved that it shall never be dethroned from its proud supremacy. In this free land there is no sovereign, fealty to whom symbolizes national loyalty, no crown to typify inherent authority; our sole emblem of fidelity to country is the flag. Here you are trained to salute it, taught

to reverence it. Remember that it is to be your pillar of cloud by day, your pillar of fire by night, that it will wave above you in victory, will be your rallying point in defeat, and if it be your privilege to offer up your life in its defense, its gentle folds will rest upon your bosom in death, its crimson stripes will mingle with your generous heart's blood, its very presence there will write a nobler epitaph than that on the sarcophagus in which the great Sesostris sleeps.

A generous country has with fostering care equipped you for your career. It is entitled to your undivided allegiance. In closing, let me mention, by way of illustration, a most touching and instructive scene which I once witnessed at the annual meeting in the great hall of the Sorbonne in Paris for the purpose of awarding medals of honor to those who had performed acts of conspicuous bravery in saving human life at sea. A bright-eyed boy of scarcely fourteen summers was called to the platform. The story was recounted of how one winter's night when a fierce tempest was raging on the rude Normandy coast, he saw signals of distress at sea and started with his father, the captain of a small vessel, and the mate to attempt a rescue. By dint of almost superhuman effort the crew of a sinking ship was safely taken aboard. A wave then washed the father from the deck. The boy plunged into the seething waves to save him, but the attempt was in vain and the father perished. The lad struggled back to the vessel to find that the mate had also been washed overboard. Then lashing himself fast, he took the wheel and guided the boat, with its precious cargo of human souls, through the howling storm safely into port. The minister of public instruction, after paying a touching tribute to the boy's courage in a voice broken with emotion, pinned the medal on his breast, placed in his hands a diploma of honor, and then, seizing the brave lad in his arms, imprinted a kiss on each cheek. For a moment the boy seemed dazed, not knowing

which way to turn, as he stood there with the tears streaming down his bronzed cheeks while everyone in that vast audience wept in sympathy. Suddenly his eyes turned toward his old peasant mother, she to whom he owed his birth and his training, as she sat at the back of the platform with bended form and wearing her widow's cap. He rushed to her, took the medal from his breast and, casting it and his diploma into her lap, threw himself on his knees at her feet.

Men of West Point, in the honorable career which you have chosen, whatever laurels you may win, always be ready to lay them at the feet of your country to which you owe your birth and your education.



THE WEST POINT LANDS. (DRAWN BY CAPT. H. M REEVE, GENERAL STAFF, U. S. ARMY, U. S. M. A., 1892.)

INTRODUCTION OF THE SECRETARY OF WAR BY THE SUPERINTENDENT U. S. MILITARY ACADEMY.

AS FIRST established by law, the Military Academy was a part of the Corps of Engineers. For over sixty years it was under the supervision and practical control of that distinguished and able body of men. They nurtured it through its infancy, and championed it until it had not only shown its usefulness in the scientific and industrial world, but had proved its worth upon the battlefield and its value to our nation. By act of Congress in 1866 the supervision and charge of the Military Academy were placed in the War Department "under such officer or officers as the Secretary of War may assign to that duty." The governing reasons were that the change would simplify the organization, would enlarge the sphere of selection for its control, and would bring the institution more directly under the supervision of the Government. Upon the Secretary of War, therefore, and upon such officers as he may select for supervision of the Academy, largely depends its efficiency and progress.

The Adjutant-General of the Army, acting under the general control of the Secretary of War, has for twenty years been charged with the immediate supervision of the Military Academy. It is a pleasure to express on this public occasion to the Honorable Secretary of War and to the distinguished Adjutant-General of the Army our grateful thanks for the uniform interest they have at all times manifested in its welfare, as well as for their cordial and active support of the measures that have emanated from

it, without which support its present satisfactory condition in discipline, scholastic work, and material improvement would have been impossible.

In the military profession, as in every other, the basis of efficiency lies in the study of fundamental principles followed by their application. The greater the opportunity for such study the greater the inducement, and the wider the study the more beneficial the result, both to the officer and the country. It is, therefore, most fortunate for the Army that within a year we have seen established in it a comprehensive and complete system of schools for officers of all branches of service. To our next speaker belongs the credit for this great step, which, with many other acts of moment to the Army, will make his administration of the high office with which he is entrusted a memorable one in the history of our country.

I have the honor to present the Hon. Elihu Root, Secretary of War.

LOOKING NORTH FROM WEST POINT (FROM A PAINTING BY ROBERT W. WEIR, PROFESSOR, U. S. M. A.)

ADDRESS BY HON. ELIHU ROOT, SECRETARY OF WAR.

MR. PRESIDENT, MR. SUPERINTENDENT, LADIES, AND GENTLEMEN: Every soldier here would more readily charge a battery than I undertake to follow the eloquence, humor, and pathos of Horace Porter. Fortunately, but few and brief should be the words which close this cheerful and interesting occasion. The centennial year of the Military Academy fittingly coincides with the beginning of an era of great opportunity and greater obligation. One hundred years ago the people of the United States, few as they were, were scattered in rural communities; the Indian and the game were near every door, and by every door hung the rifle, the powder horn, and the bullet mold. The men of Lexington and Concord had little training, but every man knew how to shoot. Life was closer to the simplicities of living, and every man knew how to take care of himself out of doors, to feed himself, to clothe himself under the simple and the hard conditions of warfare. Armies were small; the opportunities for supply were proportionately great. But now, with the increase of our population, the collection of a great proportion of our people in the great cities, with the disappearance of game, with the increasing luxuries and refinements of life, the volunteer armies upon which the Republic must in the main depend to fight its wars will be made up of men who for the most part have never fired a gun. Armies are large, and the problems of supply, of transportation, have become complicated and difficult, requiring the best art of the best-trained minds. The increase in the scientific qualities of attack and defense and the changes

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in the weapons of destruction have made it impossible that the man should come from the counter and the plow and the workshop and be familiar with the tools which he has to use as a soldier.

And now, at the very time that this great institution of military instruction is rounding out its first century of existence, the attention of our people has been sharply concentrated upon this increased necessity for military training and military science by the events of the past few years, and the conclusion which has been reached finds expression in the action of the National Legislature, which in the long run, through long discussion but with absolute certainty, reaches just conclusions in the end upon all great subjects of public importance. The conclusion that the country needs the Military Academy more at the beginning of the second century of its existence than it did at the beginning of the first is expressed by the laws of Congress, which have enlarged the number of your corps and which are just now devoting to the enlargement of the accommodations of the Academy the munificent sum of two million dollars to be immediately expended, with an authorized expenditure of five millions and a half. How well you will be able to meet the obligation and to justify this confidence let the record of the American Army of to-day answer. For our Army of America, small as it was, and far across the sea, within a few weeks of active military operation captured the fortified city of Santiago, took prisoners an army greater in number than itself, and ended in a single short campaign the conflict with the power which once controlled almost the whole of the western world. Having accomplished that feat, the Army gave to the island of Cuba what it had won; it released the imprisoned; it healed the sick; it cleaned the jails; it opened hospitals and asylums; it dotted the country from end to end with schools; it gathered the

children from the fields and forests and towns and set them in rows of bright and interested faces with schoolbooks before them; it extirpated disease and saved more lives than were lost in all the war; it established the most wonderful school of government ever known, and for three years has been teaching Cuban people how to govern themselves, and at last it has come away, leaving a free and happy and grateful people.

Its clearsighted courage made straight the way from the sea to Peking and after the capture of the imperial city and the rescue of the beleagured legations, in the space of a few short weeks the district of the city controlled by the American Army was found crowded with the people who had returned to their customary avocations under the protection of wise and just soldiers who fought and who carried the blessings of peace and justice, as they fought, under the Stars and Stripes.

In the Philippines, that great stretch of country extending for more than 1,000 miles from north to south, the Army has put down an insurrection of 7,000,000 people, so that to-day peace reigns from the northernmost point of Luzon to the southernmost island of the Sulu Archipelago. And with the sword it has carried the schoolbook, the blessings of peace and self-government and individual liberty, and now, in little more than three years after the great struggle began, in February, 1899, nine-tenths of all the men who took part in the insurgent government are engaged in sustaining or carrying on the government of the Philippines under the protection of American liberty.

Our soldiers have been criticised, and some of them have been accused, but however ready men at ease here may be to believe, to repeat, to rejoice in accusations against our brethren who are fighting under the American flag in support of American sovereignty, away upon the other side of

the world, let me tell you that the President and the Secretary of War and the officers, the public officers of our Government at Washington, have followed these soldiers of ours in report and in private letters and in telegraphic dispatches, and by the oral word of those who have returned, during all their whole course of conflict; have seen them there often barefooted tramping through the jungle; have seen them one by one dropping off, murdered by the treacherous foe; have seen them fading from disease; have seen them falling by shot and by sword; have seen them courageous, patient, enduring, magnanimous, faithful, loyal always to the highest standard of American citizenship, and we give you our words that these men shall not by the public officers of the United States charged to do justice to them be condemned unheard.

Be of good cheer, American soldiers. When the record comes to be made up in the cool judgment of the American people and of mankind; after Cuba, with its brilliant page, after China, with its glorious achievement, will be written another page equally brilliant, equally glorious, on which will be recorded the achievements, in war and in peace, of the American army in the Philippines.

All honor to the volunteers who have been and who must always be the main support of our country in war. All honor to the genius, the courage, the self-sacrifice of the men, many of whom I see before me now, who have won immortal renown as generals of the Volunteer Army. They will be the first to say aye when I declare that the formative power, the high standard of conduct, the informing spirit of every American army is to be found in the Regular Army of the United States. All honor to the officers of the Regular Army, who in true republican fashion have worked their way up from the ranks, as did Chaffee, commanding in the Philippines. And all honor to the officers who, turning aside from the

allurements of wealth and honor in civil life, have been appointed to the Army as civilians, accepting the slender income and the hard life that is known to accompany the duties of a soldier. They will be with the first to say aye when I say that the informing spirit, the high standard of the Regular Army are derived from the graduates, the teachings, and the traditions of the Military Academy. Happy augury of the future that here where for a hundred years honor has ever ruled—honor made up of courage, truth, compassion, loyalty—is to be found the formative and controlling power of the American army of the future—regular, militia, and volunteer. No army inspired by the spirit of the Military Academy can ever endanger a country's liberty or can ever desert its country's flag.

ALUMNI DAY.

ALUMNI DAY, MONDAY, JUNE 9, 1902.

PRAYER.

By Rev. GEORGE DESHON, C. S. P. (U. S. Military Academy, 1843).

ALMIGHTY AND ETERNAL FATHER, we bow down in humble adoration before Thy Divine Majesty. We acknowledge that Thou art our Creator and that we are simply Thy creatures; that all we have—our life, our health, our strength, the endowments of body and soul, our reputation, our worldly goods—all are the gifts of Thy bounty. May we make such use of them as to gain Thy favor and a participation in Thy happiness.

May Thy Kingdom come here on the earth. We pray for Thy Holy Church, which Thou hast founded on a rock, commissioned to teach all nations the very truth which Thou hast taught us, promising to be with her until the end of the world, that she may fulfill her vocation, and that all men may be brought to the knowledge of this truth and the fulfillment of their eternal destiny.

We pray Thee for our country, for our President of the United States and the Congress, for the governors and legislatures of the different States, that wise and just laws may be made for the prosperity and the benefit of all classes of our fellow-citizens, that vice, immorality, and dishonesty may be suppressed and virtue and religion may be promoted.

We pray Thee for the Army and Navy of these United States, and particularly for our beloved Military Academy, for the Superintendent and those detailed on duty in it, that

its affairs may be administered wisely, efficiently, and kindly, so that all the objects for which it was founded a hundred years ago may deserve the esteem and love of our country.

We pray for all the alumni of the Academy that they may be men of honor and integrity, lovers of God and their country, keeping the commandments of God not only in the letter but in the spirit, that when this short and transitory life is over they may be received into the eternal habitations of the Kingdom of Heaven.

And we pray for the souls of the faithful departed, for our parents, our children, our brothers and sisters and relatives and friends who have left us, that if at the hour of their death there remained any spot or blemish rendering them unfit for the presence of God it may be speedily washed away and that they may enter into the joy of the Lord.

All this we ask for the sake of the merits and suffering of our Lord Jesus Christ, to whom be all honor and glory, world without end. Amen.

TROPHY POINT, SHOWING PART OF THE CHAIN ACROSS THE HUDSON, 1778.

ADDRESS BY LIEUT. GEN. J. M. SCHOFIELD, U. S. ARMY, RETIRED (U. S. MILITARY ACADEMY, 1853).

President of the Association of Graduates U. S. Military Academy

INFANTRY PRIVATE, 1802.

DURING the entire colonial period of this country, during the war of independence, and even the subsequent war with Great Britain the military forces of the country were mostly untrained, undisciplined militia, until the latter period of the Revolution, when Washington succeeded, after great effort, in organizing and disciplining the troops of the "Continental Line." Even then, except for the few gallant foreigners who cast their lot with the young Republic, technical military education was almost unknown in this country. But the leading soldiers and statesmen of that period were not unmindful at any time of the great disadvantage under which the country labored because of the lack of such education. At the very beginning of the war with Great Britain steps were taken to introduce some sort of military instruction among the new levies, and efforts to this end were continued by Washington and his subordinates until he had in the regiments of the Continental Line a fairly well-disciplined Regular Army.

Immediately after the war, in the discussions of the question of a peace establishment for the country, great prominence was given to a Military Academy as an essential

part of such establishment. But the condition of the country for the next few years, under the old Articles of Federation, was not favorable to the consideration of any such subject. The vital question of the continued existence of the States as a nation and the adoption of an effective Constitution superseded all minor questions. But in 1793, four years after the organization of the Government under the present Constitution, Washington as President instituted measures looking to the establishment of a Military Academy. This resulted in the act of Congress of May 9, 1794, which provided for a Corps of Artillerists and Engineers of four companies, each company to have two Cadets, etc. Several subsequent acts authorized the appointment of Cadets in limited numbers and provided for their instruction; and finally the act of March 16, 1802, which authorized the organization of a separate Corps of Engineers, provided that the said corps, when so organized, should be stationed at West Point and should constitute a Military Academy. This was the germ, planted at West Point one hundred years ago, from which grew in time a great military institution.

But the development and growth of the institution were slow, indeed. Nearly everything necessary to its healthy existence was wanting, and many years were spent in numerous efforts, through inadequate legislation and other expedients, to supply manifest deficiences. At length, in 1812, Congress passed an act providing a full corps of professors and instructors for the Academy and establishing the institution on a broad and solid basis so far as could be done by law. But it still remained to impart life and health and strength and vigor. The genius to do this was found in 1817. Then Major Sylvanus Thayer was assigned to duty as Superintendent of the Academy.

Major Thayer has been not unjustly called the father of the Military Academy. He was even more than that. He

took the Academy after its youth had been well nigh wasted, and, by appropriate discipline, training, and culture, developed one of the foremost institutions of learning in the world. It is true that West Point has not fallen behind in the advance of the country up to the present time. Yet it is equally true that its essential character to-day is the same as that impressed upon it by Major Thayer three-quarters of a century ago.

The Academy has been most fortunate, during the long period from the time of Major Thayer to the present, in having a corps of able, diligent, conscientious professors, instructors, and assistants, who have loyally supported the Superintendent in developing, perfecting, and enforcing the system of instruction and discipline which has made the institution famous. But I must leave to others the agreeable task of paying just and loving tribute of honor and respect to the memories of those great and good men, whose names are household words among the graduates of the Military Academy and the lovers of learning throughout the land.

Time will not permit a description here of the circumstances as they existed at West Point before Major Thayer assumed command in 1817. The condition has been justly characterized as chaotic. The measures instituted by him were so numerous, so drastic, so minute in detail, and so comprehensive as to justify the idea of a new creation rather than that of reconstruction or reform. Suffice it to say that the rules and methods then introduced and successfully enforced gave to West Point its unique character among the educational centers of the country and laid the foundations for its world-wide fame.

It would require too much time to explain in detail what constitutes the West Point system as compared with all others. But the more salient features may be briefly stated.

First, and most important of all, is discipline. The Military and Naval Academies alone, of all the educational

institutions in this country, have the necessary power to enforce the discipline which is requisite to their course of training. Second, is the incentives to great and constant exertion and strict observance of regulations on the part of cadets afforded by the prize offered to those who win in the competition. This prize is not only a commission in the Army (or Navy), but a commission in such corps as the graduate may prefer if his class rank entitles him to the choice. The strife for these coveted prizes is very great. Third, is the published daily record of each Cadet's scholarly performance and the final summing up of these records in each and every subject, their consolidation, together with the conduct record, at the end of each term and at the end of the four years' course, so that the Academic Board may decide wisely and justly not only the relative merits of all the members of a class, but what corps or arm of the service each Cadet is qualified to enter. The object of West Point training is not simply to fit young men for the Army, but to justly determine the appropriate place for each in the several corps and arms of the service.

It has been said sometimes that Cadets and graduates show signs of overwork. It would be strange indeed if, under such incentives, ambitious young men did not go to the limit of their strength and endurance. But how can this be avoided? Would you take away the incentive and leave to chance or influence the selection of officers for the highest places in the Army? Or even, if a young man with less brains than ambition injures his health in the long-continued effort to graduate at the head of his class, who can prevent him or deny him the right to make the effort? The law of survival of the fittest seems to be the only rule applicable to such a case. I have known some such in my own experience, but I have never known or heard of one in which the injury appeared to be lasting.

I will mention only two more of the peculiar West Point methods: One is the blackboard method of recitation. Its advantages are very great, and I believe are now well understood. I am informed that this method has, of late years, become very general in the schools of the country. The second is the subdivision of classes into small sections of from eight to ten Cadets, under an instructor for each section.

In this connection it is pleasing to refer to the fact that West Point has long since ceased to be the only place in this country where a thorough mathematical education can be obtained. The great institutions throughout the country now rival the Military Academy in the thoroughness of their instruction in mathematics, pure and applied, to all who desire such instruction. It is even more pleasing to note the vast advance made by the public schools of the country, as evinced by the action of the authorities in proposing to accept the certificates of such schools as sufficient evidence of qualification for admission to the Military Academy. Not the least, in my opinion, among the honors due our old alma mater, is the fact that it was the pioneer in that thorough method of instruction and training which has now become so general throughout the country.

A note of warning here is believed to be called for. The high character always sustained by the Corps of Cadets and by the graduates of the Academy has been due in great measure to the natural characters of the young men appointed Cadets. That this has been far above the average follows as a matter of course from the fact that the selection has been made by the Congressman himself from his own personal acquaintance with the candidate and his family. The Corps of Cadets has always been a real American aristocracy—an aristocracy of character. If the time ever comes when competitive examinations or school certificates are permitted to take the place of established character, serious injury will be

done to the Corps of Cadets and to the Army. The honor as officers and gentlemen, of which Cadets have justly been most proud, is very largely in their own keeping. It is greatly to be hoped that the appointing power will do nothing to diminish the purity of this fountain of honor which comes direct from what is best and purest in the country—the respectable family.

Our beloved Academy has always set before its students the highest standards of manly character. Veracity, honesty, honor, fidelity, and patriotism, no less than scholarly excellence, have been held indispensable on the part of all who would win the diploma. With exceedingly rare exceptions the roll of graduates is one long roll of honor of men who, in every walk of life, have been distinguished for meritorious services to the country, and especially for honorable conduct among their fellow-men. Very many have gained distinction as military leaders, and some have received the applause of the world as masterly commanders of great armies. These latter, most noble sons of the Academy, during all the vicissitudes of the war, whether in victory or in defeat, have maintained toward each other and toward the people of the country that honorable, chivalrous, and Christian conduct which most adorns the noble institution where they learned the art of war.

Such, briefly and very imperfectly sketched, is what the Military Academy has been and what it has done for the country in the first century of its life. The beginning of the new century finds the institution in a condition and in hands fully worthy of the past. The great demands of the future are, I doubt not, fully appreciated, and will be met with courage and zeal commensurate with the just expectations of the country. Let us all indulge the hope and confident expectation that our noble alma mater will go steadily forward, deserving higher and higher honors for her services to our beloved country.

ADDRESS BY BRIGADIER-GENERAL T. J. WOOD, U. S. ARMY, RETIRED (U. S. MILITARY ACADEMY, 1845).

Veteran of the Mexican war.

I SUPPOSE that some apology is necessary, for you would "scarce expect one of my age to appear in public on the stage," but your worthy Superintendent has requested me to come before you, and I have not had the heart to refuse him.

The theme which has been assigned to me to respond to is "the Mexican war." The first thought that occurs to me in connection with the Mexican war is the fact that it has entirely changed the destiny of the United States. Geographically, in the first place, for the great acquisition of territory of the United States through this war extended from the western frontier of Texas to the Pacific and embraced New Mexico, Colorado, Utah, and California with its grand coast line from Lower California to the Southern boundary of Oregon; indeed such a vast area of territory was acquired that it requires a brilliant imagination to comprehend its dimensions. The Pacific Ocean with all its vast trade was opened up to us, and our more recent acquisitions of territory on both sides of the Pacific were but an after effect of the Mexican war, which gave to us a country that extended from sea to sea. So much for the effects, great as they were, of the Mexican war; and now what was the cause? How was this vast stretch of territory added to our country? The answer is simple; it was attained by military prowess, by the deeds of our soldiery.

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Before I go further on this subject let me, without egotism, tell the story of my own relations with the military deeds of that far-away time. As you all know, I am a graduate of 1845. Upon graduation I was assigned to the Topographical Engineers, and was ordered immediately from West Point to report to General Taylor, at Corpus Christi, for duty on his staff. On my way there, I met an older graduate of the Academy of the class of 1835, who was also a member of the Topographical Engineers, then Lieut. George G. Meade, who afterwards rose to world-wide fame as commander of the national Army in the great battle of Gettysburg. Lieutenant Meade and myself arrived at Corpus Christi together, and reported to General Taylor for duty, and, being lieutenants, shared the same tent. Thus on the sands of Corpus Christi began my connection with the military organization that was soon to achieve a most remarkable success against foes superior in number.

It is an accepted axiom that the poetry and songs which are heard in the camp of an army are the best exponents of the feelings of an army. As an example of this axiom let me quote one stanza from a poem written at that time by Capt. Arthur T. Lee, of the Eighth Infantry, which was very popular in the army at Corpus Christi. This army was commonly called the "army of occupation."

> Some will sleep 'neath the prairie sod,
> And some will go back o'er the sea, my boys;
> But those who are true to their country and God
> Will meet at the last reveille, my boys.

The first battle in the drama of the Mexican war was fought on the 8th day of May, 1846. The army under General Taylor was on the march from Point Isabel to Fort Brown, and when it arrived at the plain of Palo Alto the general found himself confronted by the Mexican army, 4600 strong, under

General Ampudia. General Taylor immediately disposed his troops for action, opened fire with his batteries on the Mexican lines, and they in turn responded very vigorously with their guns.

I had been detailed by General Taylor to bring up the heavy guns from Point Isabel, and it had been found necessary to use oxen for that purpose, four yoke to a gun, and it was with great difficulty that we brought our ox guns into action, and I received my baptism of fire in charge of these heavy guns at Palo Alto. Major Samuel Ringgold, a graduate of this Academy, who was the founder and organizer of light artillery in our Army, was moving immediately in the rear of my section with his light battery when a cannon ball passing directly over my guns struck him, killing his horse and mortally wounding the major, so that by this chance, as it were, the first man I ever saw killed in action was a graduate of this Academy. This vigorous cannonade was kept up until darkness compelled its discontinuance. We had no direct evidence of its effect, but we felt sure that it had been decisive and marked.

Both armies rested on their arms on the field of battle, being unable to light any fires for the preparation of food because it would be a mark for the enemy. Somewhat to our surprise the following morning when we got up we found the enemy had retreated during the night.

As soon as the needed preparations could be made we at once marched in pursuit. About noon we found the enemy halted across our line of march in battle array at Resaca de la Palma; another sharp encounter ensued, but before nightfall we had again forced the Mexicans to withdraw with heavy loss, including several pieces of artillery and one general officer, General La Vega. This battle was marked by the very brilliant cavalry charge under Captain May of

the old Second Dragoons, which broke the Mexican center and captured several guns.

As the result of these two engagements the army of occupation under General Taylor, only 2200 strong, had compelled the Mexicans, 4600 strong, to retreat across the Rio Grande, and Texas was completely in our possession.

As soon as supplies could be brought up we ascended the Rio Grande to Carmaga, where a new base was established. In September '46 advance was begun into northern Mexico and the Mexicans were first encountered in force at Monterey. This city had been very strongly fortified by the Mexicans and their position was most formidable. General Taylor at once prepared for action, and after three days' hard fighting, some of it in the streets of the town in hand-to-hand combat, we so surrounded the town of Monterey that Ampudia, who was in command of the Mexicans, offered to surrender. General Taylor accepted the terms, and the Mexicans were disarmed and, under parole that they would not take up arms against the United States again, were allowed to evacuate the town.

During the winter of 1846–47 our army was encamped around Monterey, and quite a number of troops were drawn off to take part in General Scott's expedition on the east coast; but in February, 1847, we advanced as far south as Saltillo, and there learned that Santa Ana, the ablest general in the Mexican army, was advancing with a large army to overwhelm General Taylor's small force.

General Taylor fell back and concentrated his army at Buena Vista, and there awaited the Mexican advance. When Santa Ana appeared in front of our position at Buena Vista, he at once sent in a flag of truce, and demanded of General Taylor the surrender of his army on the ground that it would, without question, be captured, and he wished to avoid needless loss of life.

Of course the communication was in Spanish, and when the interpreter had finished reading it to General Taylor, the old man, with his characteristic readiness and brusqueness, said: "Tell him to go to hell." This reply of the General's justifies the name that his men gave him of "Old Rough and Ready."

The odds were greatly against us, as we had but 4600 men to 22000 Mexicans, and the latter fought as if victory was in their grasp; but the American soldier of that day did not know the word "defeat." For two days the battle waged most fiercely and the loss of life on both sides was very great, but on the third day when we gazed on the Mexican position, to our great joy and satisfaction, we found that during the night they had retreated, and the victory was ours.

But the fight had cost us dear, many of our fellow-graduates had poured out their life's blood on the field of Buena Vista. Among them were William R. McKee of the class of 1829 and Henry Clay, jr., of the class of 1831. These two gentlemen were colonel and lieutenant-colonel of the Second Kentucky Infantry.

After the war the legislature of Kentucky made an appropriation to have the remains of the Kentuckians killed at Buena Vista removed to the cemetery near Frankfort, and Theodore O'Hara, who was also a soldier, wrote a beautiful poem in honor of this touching act of the people of Kentucky.

This poem was entitled the "Bivouac of the Dead," and I will quote one verse from it:

> The muffled drum's sad roll has beat the soldier's last tattoo;
> No more on life's parade shall meet that brave and chosen few.
> On fame's eternal camping ground their silent tents are spread,
> And glory guards with solemn round the bivouac of the dead.

After this most successful battle there was no serious fighting and no important military operation on General Taylor's line.

The scene of operations was now along the southern and eastern frontier of Mexico, where General Scott now opened his campaign. From the capture of Vera Cruz to the last blow in the grand operations around the City of Mexico, his course was marked by the most magnificent and grand success; Molino del Rey, Churubusco, Chapultepec became days of glory for our arms, and finally our flag was floated over the Halls of the Montezumas.

In all these battles our brothers of the Academy played their usual glorious rôle. One of them, Molino del Rey, has a special personal interest for me, as in it my old classmate and roommate at the Academy, Joseph F. Farry, was killed at the head of the storming party inside of the Mexican lines.

In 1848 ratifications of the treaty of peace of Guadalupe Hidalgo were exchanged between the two nations, our troops were withdrawn from all parts of the Republic, and peace reigned again along the Rio Grande.

Thus ended a war most glorious to our arms and nation, and the greatest glory rested on the deeds of our band of brothers, the graduates of this Academy. General Scott said, in speaking of the work of the graduates, "I give it as my fixed opinion that but for our graduated cadets the war with Mexico would have lasted four years instead of one and one-half, and we would have lost the greater part of the first two years' engagements—instead of this we did not lose one."

In this war many of the greatest leaders on both sides in our great civil war learned their first lessons in warfare, and began to show the mettle that was in them.

Sixty years have passed away since I first stood on this fair plain of ours, and but few of the men of my day are left to join in this grand celebration of ours to-day. Their work is done; how well it has been done is told on every page of our country's history.

And now, since the graduates of the decade of the forties are not likely to meet with you again, I bid you a last farewell, and with it this benediction, a true heritage of the old Academy which we love so well:

> When you and I and Benny, and General Jackson, too,
> Are brought before the final board our course of life to view,
> May we never "fess" on any point, but then be told to go
> To join the army of the blest and Benny Havens oh.

ADDRESS BY MAJ. GEN. THOMAS H. RUGER, U. S. ARMY, RETIRED (U. S. MILITARY ACADEMY, 1854).

Veteran of the Civil War.

MR. PRESIDENT AND FELLOW-GRADUATES OF THE MILITARY ACADEMY, LADIES AND GENTLEMEN: To soldiers of the civil war, veterans in age they now must be, the details of events and incidents in connection therewith have for most part faded somewhat from memory in the succession of years; but certain impressions, especially those affecting the feelings and the imagination, remain in force and possibly grow stronger in retrospection through the vista of intervening events.

Of these impressions are, that of the great uprising of the people to meet the trial of war when it became imminent, of the succession of great battles and many campaigns, and possibly greater than any other, that of magnitude in physical effort made and in moral results produced. In no former instance in history were so large forces engaged for such length of time, nor in any case in civil war. The great joy of the nation at the happy ending of the war signified the import of the results apparent in degree to the minds and hearts of the people, and which year by year is perceived more fully in view of a unified nation, powerful, confident of the future, with no shame upon its brow, and by contrast in thought otherwise of a dissevered country, the fragments without respect of the world, and with further war as a legacy of the struggle.

The performance by graduates of the Academy in the war and its effect will mainly be the subjects of my remarks, in

THE BATTLE MONUMENT (DEDICATED 1897) TO OFFICERS AND SOLDIERS OF THE REGULAR ARMY WHO WERE KILLED DURING THE CIVIL WAR, 1861–1865.

furtherance of the motive of this meeting the celebration of "the centennial of the Military Academy," not of the fact merely, without essence by itself, that a hundred years have passed since the Academy was founded, but for taking account of its product by bringing together for view in mass the sheaves of the harvests by its sons for a hundred years. In fact, with the reflection that a century in time has passed since the foundation of the Academy there comes to mind almost spontaneously the question of utility: What are the deeds of its graduates that justify its institution, and what in their conduct gives adequate warrant for its continuance?

It would be impossible in the time properly assumable for my remarks to present in detail the facts and events of the civil war pertinent to these questions, much less the mass of statistics applicable, and consideration of the part taken by graduates of the Academy in the war will consist mainly in statements of facts of common information, the inference from which relative to the purpose will be evident and which to many present are in great part of personal knowledge.

One fact affecting the body of graduates of importance as well as concern to the country, more so than at the time was generally apprehended, probably even by the Government, was the instant return to the military service of the country at the beginning of the war of practically all graduates, capacitated and then in civil life, from States supporting the Union—a return not made upon formal call by the Government, but voluntarily, each impelled, not less by patriotism than his fellow-countrymen who volunteered, but also by the sense of honor and of obligation to fulfill duty fostered by the training of the Academy.

It may be said that such conduct was properly expectable—quite true; but the properly expectable often met by individuals is seldom so by an entire class—almost never at individual volition. Among those so returning were

Generals Grant, Sherman, McClellan, Rosecrans, Hooker, Burnside, army commanders, and many others of honorable fame and some also illustrious.

This action was in spirit, in continuation of that shown by graduates of the Academy in civil life when the war with Mexico occurred; the number then volunteering for service was so large that the Government was finally compelled to refuse offers for lack of places.

To recur to the question of performance in the war by graduates of the Academy. When or where to begin matters little. At any time and anywhere the commander of an active army of the Union is a graduate.

The phrases "the volunteers" and "the volunteer armies," implying those persons in service or in organizations as distinguished from, or not infrequently as contradistinguished to, the regular force and all of its inclusions, were in frequent use during the war and the years immediately following, and still survive in similar sense. The popular opinion was that the Regular Army, owing to its limited numbers, was an insignificant element relative to the war. The assertions now that there was no volunteer army, distinctively in a military service meaning, would seem a surprising statement to many, if not an offensive one, but such is the truth. The armies which subdued the rebellious States were, of course, in rank and file, and in the numbers of officers, practically volunteer, but not in command, organization, instruction, and discipline. They were a coalescence of the volunteer and regular forces, principally on the part of the latter by its officers, including the graduates of the Academy, returning to military service from civil life, and other non-graduates formerly officers.

These officers as a body were of the very life of the armies as disciplined and fighting organizations.

It might be taken for granted that recourse for the chief

commanders would at first, as was the case, be had to officers of the Regular force, including as of the same class those formerly of the Army. The chief commands in the field were held by graduates as a class throughout the war, and also a large proportion of the higher commands not armies.

The confidence in such commanders by the armies, the active forces—call them volunteers or by what designation you may—and of the country was abiding.

These conditions of predominance in command by graduates of the Academy and of reliance upon them for results under the stress of four years of war when the demand by the country for results was urgent at the first and became more pressing in spirit, if not so loud in utterance, as time passed, was not fortuitous. It was recognized by all that if these men could not lead to success hope must be abandoned.

As an accompaniment to the fact of command was that of chief control and direction by graduates of the administrative and supply departments, both in the War Department and with the principal armies in the field. How well such duties were in general performed needs no specification, certainly not to participants in the war.

The war with Mexico gave the Academy its laurel wreath, the civil war a lasting crown.

It may be reasonably supposed that the services rendered the country during the period of the war by many men eminent as statesmen, legislators, and jurists might be disregarded without essential effect as to final results, but should the names and deeds of Generals Grant, Sherman, Meade, Thomas, Sheridan, McClellan, Buell, Halleck, Hooker, Schofield, McPherson, Franklin, Sedgwick, Slocum, Howard, Reynolds, and many other graduates of the Academy be excluded from conception of results the history of the country from 1861 would be only matter for conjecture.

The list of battles where they commanded embraces all of essential consequence in determining final success. But let not the mistake be made by inference from the foregoing remarks, substantially a statement of facts, that they are prompted by a spirit to detract from or in any way to belittle the value of services rendered by officers of volunteers simply.

They formed the greater part by far of the officer body; steadfast men they were, and many showed qualities for and worthily attained to high command. As time passed a large number of good aptitude, profiting by experience, especially those comparatively young, were fast coming to prominence during the later part of the war. The records show that army commanders suitably recognized the merits of these officers as quickly as those of graduates of the Academy. So far from lack of harmony existing between the elements, regular and volunteer, unity in purpose and concord in spirit prevailed.

The phase "civil war," as used in these remarks, is the proper one, although the term "rebellion" was the official designation by the Government. The case was that of several parts, individual subordinate States, attempting by formal action to withdraw from the Union and by combining together and the use of force to make the attempt effective.

This is civil war. The outcome was something more than the preservation of the Union, the first purpose. The principle of the supremacy of the nation was established.

The founders of the Constitution hoped the principles embodied therein and its provisions would assure the nation against the ills that assail States from within, but such hope was not founded on human experience. The ideal republic was not yet, probably will not be until the ideal man in mass appears. The Constitution of the separate States, political units with legislative power, gave ready means for, if not indirect inducement to civil war when the spirit therefor arose.

Of the subjects for reflection that come to the mind of the veteran of the war is the kind of man in the ranks, the predominating elements, and their quality in his character as a soldier. A brief characterization will lead to appreciation of the man who stood out at the close of the war indicative of a potent military nation not before much regarded by the world in such aspect.

It was not so much his courage that fixed attention as its combination with fortitude, self-reliance, and determination in such degree that fighting, however adverse, did not greatly depress his spirit. To many, even military students in Europe, the war appeared to be a succession of fierce battles with great loss of life, few victories, but with little loss of fighting spirit on either side. The reasons for the indomitable spirit of the troops are not far from view. The descent in both the Northern and Southern States of all but a small fraction of the people was Teutonic in the general sense and Celtic. The elements of self-reliance and determination inherent in these races had been strengthened in their descendents and offshoots in this country by the conditions of their lives and the nature of their surroundings in the work still in progress of occupying a continent, in general phrase. From a mass such in general kind there stepped forth at the call of the country the most willing and the most resolute, and thereby the most fit for the duty demanded.

It would be unwarrantable to assert that no army has existed superior in fighting power, man for man, to those of the Government armies and their Confederate opponents. The high qualities exhibited by these men still abide, and will be a legacy by transmission to far distant time.

It is not within my province to present considerations relative to the deeds and conduct of graduates of the Academy who fought against the Government during the war. An able graduate will address us, a veteran of the Confederate

side in the war. The statement may, however, be permitted me that no one who faced such graduates in battle doubts the sincerity of their intent. Civil war necessarily implies sincerity on the part of participants; the state is otherwise impossible. Hypocrites do not combine for fighting. When the end came there was found in their hearts an echo to the words, "Let us have peace."

It is gratifying to meet many such graduates on this occasion for gratulation, and to further renew the tie of good-fellowship, and especially to meet them at this place, where, as in the days of our youth, honesty and duty are still watchwords; where a man is estimated according to his qualities, and where favor can not be purchased. So may it always be.

ADDRESS BY GENERAL E. P. ALEXANDER, LATE C. S. ARMY (U. S. MILITARY ACADEMY, 1857).

Veteran of the Civil War.

Once more the light of Jackson's sword
  Far flashes through the gloom.
There Hampton rides, and there once more
  The toss of Stuart's plume.

Oh, life goes back through years to-day
  And we are men once more,
And that old hill is Arlington,
  And there the alien shore.

And over yonder on the heights
  The hostile camp fires quiver,
And sullenly 'twixt us and them
  Flows by Potomac's River.

THE Confederate veterans! With these words does there not arise in every mind the thought of a meteoric army which over forty years ago sprang into existence, as it would seem, out of space and nothingness, and after a career of four years, unsustained by treasury or arsenal, but unsurpassed for brilliant fighting and lavish outpour of blood, vanished from earth as utterly as if it had been a phantom of imagination.

It had followed as a banner a starry cross, born in the fire and smoke of its battle line, which had flown over its charging columns on many fields and under many leaders, whose names proud history will forever cherish, and then in a night it also had taken its flight from earth, to be seen no more of men.

A Federal historian wrote of this army:

> Who can forget it that once looked upon it? That array of tattered uniforms and bright muskets—that body of incomparable infantry, the Army of Northern Virginia—which for four years carried the revolt on its bayonets, opposing a constant front to the mighty concentrations of power brought against it; which, receiving terrible blows, did not fail to give the like, and which, vital in all its parts, died only with its annihilation.

And the whole people who had created that annihilated army and had upheld that vanished flag, and in their behalf had sacrificed its all, now with one consent gave to the cause for which they had striven vainly but so well, the title "The Lost Cause."

And this people mourned over their lost cause as the captive Israelites mourned over Zion: "If I forgot thee, O Jerusalem! let my right hand forget its cunning, and my tongue cleave to the roof of my mouth." But they buried their grief deep in their own hearts, and, exchanging swords and guns for implements of industry, set themselves to restoring their desolated homes and rebuilding their shattered fortunes.

And now a generation has passed away. The smoke of civil conflict has vanished forever from the sky, and the whole country, under the new conditions evolved in its four years' struggle, finds itself united in developing its vast resources in successful rivalry with the greatest nations of the earth.

Whose vision is now so dull that he does not recognize the blessing it is to himself and to his children to live in an undivided country?

Who would to-day relegate his own State to the position it would hold in the world were it declared a sovereign, as are the States of Central and South America? To ask these questions is to answer them. And the answer is the acknowledgment that it was best for the South that the cause

was "Lost!". The right to secede, the stake for which we fought so desperately, were it now offered us as a gift, we would reject as we would a proposition of suicide. Let me briefly review the story of this change of sentiment.

We believed, and still believe, that its sovereignty was intended to be reserved by each and every State when it ratified the Constitution. It was universally taught among us that in this feature there was divinely inspired wisdom.

It may have been wisdom for that century. Each State was then an independent agricultural community. The railroad, the steamship, the telegraph, were undreamed of on earth. But, as in nature, whenever the climate has changed, the fauna and flora have been forced to change and adapt themselves to new environment, so among mankind must modes of government be modified to conform to new conditions.

The steamboat, railroad, and telegraph by 1860 had made a new planet out of the one George Washington knew. National commerce had been born, and it was realized that State sovereignty was utterly incompatible with its full development. The "inspired wisdom" of the previous century had now become but foolishness. Nature's great law of evolution, against which no constitution can prevail, at once brought into play to overturn it forces as irresistible as those of a volcano. But such Darwinian conceptions as those of political evolution had then entered few men's minds. Patrick Henry had said, "Give me liberty or give me death." Surely it would not be liberty if we could not secede whenever we wished to. Holding these views, we should have been cowards had we not resisted for all we were worth. And posterity should be grateful for our having forced the issue and fought it out to the bitter end.

Now, I have learned to appreciate the limited range of Patrick Henry's views, and have discarded them in favor

of Darwinian theories. I want neither liberty nor death; I want conformation to environment.

And as the changes in our planet still go on, and as international commerce has grown up—a Siamese twin to national commerce—I applaud our nation's coming out of the swaddling bands of its infancy and entering upon its grand inheritance. Let it stand for universal civilization.

This is but a small and crowded planet, now that science has brought its ends together by her great inventions. Neither States nor nations can longer dwell to themselves. An irrepressible conflict is on between barbarism and civilization.

Through human imperfection much that must be done may seem harsh and cruel. Much that has happened doubtless was so to our aborigines; but for all that we must look forward and not backward, and walk boldly in the paths of progress.

Now, for their bearing upon my story. Let me speak briefly of two matters of history.

Mr. Charles Francis Adams, in a recent address, has pointed out that it is due to General Lee that at Appomattox, in April, 1865, a surrender of the Confederate army was made, instead of the struggle being prolonged into a guerrilla war, such as has been recently seen in South Africa. This action does, indeed, place Lee upon an exalted plane. And it fortunately happened that his rival actor in this great drama was General Grant, a brother graduate of the Military Academy.

Our Alma Mater may cherish the record of that day, when two of her sons, having each written his name so high in the annals of war, now united to turn the nation into the paths of peace. For General Grant, who has been proudly called by his victorious army "Unconditional Surrender" Grant, now seemed only to seek excuses to spare the Confederates

every possible mortification and to save them from individual losses, even at the expense of his own Government.

His example was immediately followed by every man in his army, down to the humblest teamster Time fails me to describe the friendliness, courtesy, and generosity with which the whole victorious army seemed filled. The news of the surrender and its liberal terms was received everywhere with similar feelings of generous conciliation. In proof it is only necessary to refer to the early negotiations between Sherman and Johnston. President Lincoln also fully shared these feelings and even planned for the South financial compensation for its loss of property by the emancipation of its slaves. Thus for six days—from April 9 to 14—there was every prospect that reconstruction would be accomplished in the spirit manifested by Grant and under the direction of Lincoln, who, without her knowledge, was at that time the South's most powerful friend. Our treatment would have been not less liberal than that we have just seen accorded by the British to the Boers.

Oh! the pity of it! That this spirit of peace and good will could not have been permitted to spread over the whole country and influence the breasts alike of both victors and vanquished.

By the fatuous act of an assassin, in a moment, this fair vision was shattered, and in its place, and without fault upon her part, there was invoked against the prostrate South a whirlwind of rage and resentment. Indeed, it is due to the restraint put upon the political leaders of the North by General Grant that the death of Lincoln did not mark for the South the beginning of greater woes than those of the war itself. There resulted many years of bitterness and estrangement between the sections, retarding the growth of national spirit, and yielding but slowly even to the great daily object lesson of the development of our country.

But at last, in the fullness of time, the stars in their courses have taken up the work! As in 1865 one wicked hand retarded our unification by the murder of Lincoln, so in 1898 another assassin, equally wicked and equally stupid, by the blowing up of the *Maine*, has given us a common cause and made us at last and indeed a nation in the front rank of the world's work of civilization, with its greatest problems committed to our care.

But there is still one thing more to be said.

Was all our blood shed in vain? Was all the agony endured for the lost cause but as water spilt upon the sand?

No! A thousand times, no!

We have set the world record for devotion to a cause. We have given to our children proud memories, and to history new names, to be a theme and an inspiration for unborn generations. The heroes of future wars will emulate our Lees and Jacksons.

We have taught the armies of the world the casualties to be endured in battle.

And the qualities of heart and soul developed both in our women and men, in the stress and strain of our poverty and in the furnace of our affliction, have made a worthier race, and have already borne rich reward in the building up of our country.

But above and beyond all, the firm bonds which to-day hold together this great nation could never have been wrought by debates in Congress. Human evolution has not yet progressed so far.

Such bonds must be forged, welded, and proved in the heat of battle and must be cemented in blood. Peace congresses and arbitrations have never yet given birth to a nation, and this one had to be born in nature's way.

So much for the attitude of the South and the steps through which it has been reached.

But bear with me yet a little, for I can not leave the thoughts and memories evoked by my theme without some reference to a few among the great figures who moved amid those scenes, lest my story should seem to you as one of Hamlet with Hamlet left out.

> And Love, where death has set its seal,
> Nor age can chill, nor rival steal,
> Nor falsehood disavow

Shall I name to you at once the Confederate hero who deserves the highest pedestal, who bore the greatest privations and contributed most freely of his blood to win every victory and resist every defeat? I name the private soldier. Practically without pay, and on half rations, he enlisted for life or death and served out his contract. He did not look the fighting man he was. He was lean, sunburnt, and bearded; often barefoot and ragged. He had neither training nor discipline, except what he acquired in the field. He had only antiquated and inferior arms, until he captured better ones in battle. He had not even military ambition; but he had one incentive which was lacking to his opponents, brave and loyal as they were. He was fighting for his home. From the time of Greece to that of South Africa all history attests the stimulus of the thought of "home" to the soldier fighting for it. And if some young military scientist among your bright boys can formulate an equation to express the battle power of an army I am sure he will find the thought of "home" to be the factor in it with highest exponent. So there was nothing anomalous about the fighting of our army. We fought for our homes under men that we loved and trusted. This brought out the best in every individual, whether private or general.

Upon our President, Jefferson Davis, there fell from the necessity of his prominent position not only defeat, but obloquy, and woes too many to enumerate. History, however, will do him justice as having been most worthy to

represent us, whether as a man, a statesman, or a soldier. And as any compromise of the issues at stake would have only carried with it the seeds of another war, the nation is to be congratulated that to his high courage and devotion to his cause no compromise was possible.

And how, now shall I speak to you of the great Lee whom it was an education to know? Never elated and never depressed, but always calm and audacious in reliance upon himself and his troops, who in their turn relied upon him and loved him unto death.

Of stern and grave Stonewall Jackson, trusting only in the god of battles and in the righteousness of his cause, but winning by the fierce courage his personality inspired.

Of Joseph E. Johnston, master of strategy in the great game of war, whose brain was "Reason's self-encased in bone."

Of Beauregard, who won Bull Run by his personal tenacity and with such science and skill defended Sumter and Petersburg.

Of Longstreet, whom Lee called his "old war horse," doing heavy work on every field from Bull Run to Appomattox.

Of A. P. Hill, whose name was last on the lips of Lee upon his deathbed, and of Jackson when he "crossed over the river to rest in the shade of the trees."

Of genial, dashing Stuart, always ready for any venture and sanguine of success, who took up the battle left unfinished by Jackson's fall and carried it to its brilliant end.

Of gifted Hampton, our Chevalier Bayard, with his saber-scarred face, who served his State as effectively in peace as he had done in war, and "always bore without abuse the grand old name of gentleman."

Of Hood, with his one leg and crippled arm, under whom the Texans loved to fight.

Of good old Ewell also with his one leg and bald head and lustrous woodcock eye, who believed fighting to be the sole business of a soldier.

Of Early—whose unreconciled spirit is perhaps still raiding up and down the valley—and a thousand others whose forms and faces throng upon my memory, and whose names history has inscribed upon her Roll of Honor.

It were a shorter task to try and enumerate the great fields of battle made historic by their valor.

Dolorous and bootless Antietam is conspicuous as the bloodiest single day in the annals of this continent.

Pickett's charge at Gettysburg was the brilliant culmination of a school of attack, which has forever passed away with the advent of modern arms.

But Jackson's valley campaign will always illustrate the correct principles of strategy, however weapons may be altered or improved.

Wilderness and Spottsylvania, where the Federal army in eight days suffered more casualties than befell in all the wars from the discovery of America to 1860, were but the initial combats of what should be called the one great "Battle of Grant and Lee," begun on the Rapidan on May 4, 1864, and fought without pause until ended at Appomattox on April 9, 1865, eleven months and six days. History has scarcely a parallel for such supreme display of battle power upon each side.

At its opening Grant marshaled 122,146 men, and 61,274 followed Lee. In its progress every available reenforcement was called in by each side, the Confederates even robbing the cradle and the grave to repair their wasting ranks.

At its end, the Federal losses had reached a total of 124,390. The Confederate losses can never be known, for their army was wiped out of existence, and no reports were possible.

But the final act was the surrender of 28,356 Confederates to a force of 100,000—immediately about them—a million men being in arms on the Union side. And so did time permit, lessons could be learned and stirring events be depicted from the memories of innumerable other scenes.

But I prefer to leave the picture as it stands. We did not go into our cause; we were born into it. We fought it out to its remotest end and suffered to the very utmost its dying aches and pains. They were rich in compensations and have proven to be only the birth pangs of a new nation, in whose career we are proud to own and to bear a part.

And to our Alma Mater, who taught us not the skill to unravel conflicting political creeds, not—

> that acumen to divide
> A hair twixt south and southwest side—

but rather to illustrate by our lives manly courage and loyalty to convictions, we commend the record of—

> The old Confederate veteran, we know him as he stands
> And listens for the thunder of the far-off battle lands.
> He hears the crash of musketry, the smoke rolls like a sea,
> For he tramped the fields with Stonewall and he climbed the heights with Lee.
>
> The old Confederate veteran, his life is in the past,
> And the war cloud, like a mantle round his rugged form is cast.
> He hears the bugle calling o'er the far and mystic sea,
> For he tramped the fields with Stonewall and he climbed the heights with Lee.

ADDRESS BY MAJOR E. J. McCLERNAND, 12TH U. S. CAVALRY (U. S. MILITARY ACADEMY, 1870).

Veteran of the Spanish-American War.

MR. PRESIDENT AND FELLOW-GRADUATES: The gallant and distinguished officer in whom all Americans take pride as a man, a soldier, and a general, J. Franklin Bell, who was first requested to respond as a veteran of the Spanish-American war, was unable to accept. His gallantry, experience, and soldiery qualities are still needed in the Philippines, and while we regret his absence, we can not but recognize its necessity.

Since the close of the civil war the country had enjoyed thirty-three years of peace. The end of that great struggle found the people tired of war; and, in the mad race for wealth that followed, the military profession and preparation no longer interested them. Until the early eighties the Navy suffered as much, if not more, from this neglect than the Army. About this time, however, a few wise and farseeing men were able to lay the foundation for a new Navy. The naming of vessels after cities and States created a local interest in different war ships, which grew as the number of vessels increased, and it is fair to say the Navy had become a favorite with the public before the war with Spain. The Army was less fortunate; appropriations were grudgingly given, legislation for the desired reorganization could not be had, an antagonistic feeling toward the regular establishment was entertained by many interested in the National Guard, and it must be admitted the Army of the United States struggled on for a number of years under a heavy load of difficulties. Fortunately the

interest and zeal of the great mass of the regular officers were not cooled by the indifference of the people, and the years immediately preceding the Spanish-American war were replete with study, and as far as circumstances would permit, with practice assimilated to the conditions of war. It was because of these preparations persistently pursued in the face of obstacles well-nigh insurmountable and often disheartening that the little army we sent to Santiago de Cuba was able to render so good an account of itself, and to justly claim and to receive from the country an acknowledgment of the constancy of purpose and gallantry under hardship that merited and achieved success.

That war would come was written during the winter of 1897–98 in letters so large that he who ran might read, and yet those always eager to proclaim from the housetops that the days of war have passed, and that a high court of arbitration will henceforth settle disputes between nations, made themselves conspicuous throughout the winter, even after the destruction of the *Maine*, and in fact until war became an accomplished fact.

To permit a country to drift into war in such a way is a crime. What are the facts as regards needed supplies? Even the most important—rifles, ammunition, and ocean transportation—were lacking, for it was evident the latter would be speedily needed unless our land forces were to act simply on the defensive.

On March 9 Congress appropriated $50,000,000 "for national defense." Observe this was for defense; and the President confined its expenditure within that limitation. From this fund allotments were made for the War Department as follows: Ordnance, about $10,000,000; Engineer, $5,500,000, both amounts mainly for coast defenses. The Quartermaster's Department got but $500,000, the Medical $20,000, and the Signal Corps $226,000. However, when

the declaration of war came, April 25, although it said war had existed since the 21st, the larger part of the Regular troops had been concentrated in Southern camps, many torpedoes and mines had been placed in various harbors, and the work of placing our seacoasts in a suitable state of defense, which had been lagging for years because of the lack of suitable appropriations, was rapidly and materially advanced.

The War Department had been unable to do anything in the way of accumulating material for offensive action. The arsenals and private establishments were working to their full capacity day and night, turning out guns, carriages, powder, etc., for the seacoast, but while every sane and practical man knew war was inevitable, it was decided the War Department could not purchase or even contract for any material outside of that for "national defense." Thus no accumulation of material was permissible for that army of volunteers upon which Congress and the people have repeatedly said this country must rely in the event of war. Here is food for serious reflection. Are we likely to have a longer notice of the outbreak of hostilities on another occasion, and will the sentiment of the country ever be more united in demanding war? All can recall how the people, as well as the press, insisted on the liberation of Cuba, and those of us who traveled with troops from the heart of the continent to the selected camps of concentration will never forget the wild enthusiasm of men and women, whose faces showed that our forward movement had their ardent approval and that the men behind the guns had the hearts of the people behind them. Every soldier going to the front felt in a pronounced degree this remarkable heart beat of the nation. It was the apotheosis of patriotism, the magnificent spectacle of a nation aroused, not given to all men to see, but once witnessed, never forgotten.

The hearts of the people went out to their soldiers, and could an army but carry into battle the impassioned emotions that filled the minds of the troops as they were cheered on to the front, it would be invincible. The people so long indifferent to military affairs were aroused at last, and their patriotism swept on like a mighty flood, taxing the ingenuity and energy of those in command to direct it into practical channels. There is no doubt we entered upon the war with Spain under conditions peculiarly favorable for organizing and training the volunteer forces, upon which the country, whether wisely or unwisely, has elected to rely in the hour of trial, and yet these conditions did not permit any bureau of the War Department to purchase or even contract for supplies so soon to be needed by the volunteers. Each bureau had provided only enough for the immediate everyday needs of the regular establishment on a peace basis.

How can such unpreparedness be avoided in future? It brought upon patriotic and able men, charged with the direction of affairs, vituperation and abuse for shortcomings and evils which it was too late to avert, and for which they were in no way to blame.

The volunteers responded to the President's call with patriotic eagerness, but the Department was unable to properly equip them. There were lacking shoes, blankets, canteens, tents, trained horses, rifles, aye, and even the bullets to shoot therefrom. It will not answer to say that Congress must be more far-seeing, must in time of peace prepare for war. Congress will do just so much and no more than the people wish. No public servants act, as a rule, more in unison with the wishes of their constituents than do the members of our Congress. We must therefore conclude that to correct the evil under consideration, some means must be found to arouse the people to the necessities of our profes-

sion, and not to permit their active support to delay until the enemy is unfurling his banners. To draw something practical from these lessons, let each soldier, and those who have been soldiers, resolve to labor untiringly to educate our fellow-citizens in recognizing the necessity for timely military preparation, to make them realize that on another occasion we may be fighting against a foe capable of calling from us a real effort on land and sea, and that to proceed as we did may not, indeed, bring ultimate defeat, but humiliation, a useless loss of life, and waste of money.

On another occasion events may not permit so leisurely a preparation as did the war with Spain, where on March 9 we appropriated $50,000,000 for defense; on April 25 declared war, and in August had 247,000 men under arms, but the greater part furnished with an inferior rifle. Previous apathy on the part of the people with the resulting reluctant legislation, had borne its fruit, which would have been bitter indeed had our enemy been England, Germany, or France. The important Quartermaster's, Commissary, and Medical departments were denied the opportunity of any preparation until April 23. On that date there was a call for 125,000 volunteers, and on the 26th authority was given to increase the Regular Army to about 61,000 men. Medical and hospital supplies, clothing, tentage, land and ocean transportation, all had to be considered and provided for at the same time. In May there was a further call for volunteers, and the wonder is, not that there was confusion, but that we made such progress as we did. The field of operations due to Dewey's victory extended half around the globe, and when the conditions are fairly considered the rapidity with which our forces were organized, instead of meriting complaint, should meet with unstinted praise; at all events we did our best, and are not likely to do better in the near future. In 1861 the first call for troops came as it did in 1898, in April.

In 1898 we had 247,000 men in the field in August; in 1861 this number was not reached until November.

Unforeseen movements on the part of the enemy rendered early offensive action imperative. Fortunately our strength, or rather Spain's weakness, enabled us to strike hard at Santiago de Cuba. Dewey had already electrified the country, and perhaps surprised Europe, by his magnificent victory in Manila Bay. His genius, decision, and audacity wrote his name high on the rolls of fame. Like Farragut at Mobile he did not permit the fear of torpedoes to interpose between his fleet and that of the enemy, but sailed on to victory and imperishable renown. All honor to him and to the officers and men who so gallantly served with him. They set a pace that was hard to follow, but the Navy at home and the Army turned their faces toward Santiago with a fixed determination to achieve brilliant success.

The reason for the campaign is quickly told: A Spanish fleet had unwisely entered the harbor at Santiago, and our blockading admiral promptly called for the cooperation of the Army in an attempt to destroy nearly all of what remained of Spain's sea power. He asked for 10,000 men. Fortunately we were enabled to send 815 officers and 16,072 enlisted men.

A few words about Tampa and the preparations incident to the embarkation there will not be amiss, perhaps, at this point. A fairly good harbor and its proximity to Cuba determined, in a large measure, the selection of Tampa as a camp for mobilization. Under the conditions existing when the Spanish squadron was discovered in Santiago Harbor Port Tampa was the logical port from which to sail. That its railroad facilities were inadequate to the demands is certain, and had we possessed a better appreciation of the lack of enterprise of the Spanish navy we might well have divided the Fifth Corps and the troops acting with it and caused

detachments to sail from several ports, as did General Bates from Mobile, all to unite off the south coast of Florida. But we believed then, and reasonably, that the Spaniards would make a determined attempt to destroy our transports. This certainly should have been their policy, and we could not assume they would not adopt it. The necessity for an adequate supply of potable water and other sanitary requirements demanded that as the different regiments arrived they be assigned to camps separated by considerable distances from each other and from Port Tampa. To have placed any considerable portion of the army at the latter place was not practicable, however desirable it might have been as an assistance to speedy embarkation. The railroads from the North leading directly into Tampa were more than sufficiently taxed. The single track on to Port Tampa was simply swamped. Undoubtedly a second track was needed, but for various reasons it was not practicable to build it.

The fact that the facilities were inadequate for embarking the troops and large quantities of supplies at Port Tampa was well appreciated at the headquarters of the Fifth Corps. Suggestions have been heard since as to what might have been done, but in looking back to that time when sleep and rest were almost unknown at corps headquarters, I recall that everyone there, from the commanding general down to the youngest officer, was ready at all times to accept a good suggestion. One object, and one only, was kept constantly in view, viz, to obtain the best possible results. Many of the ideas afterwards advanced had the advantage of what is commonly called "hindsight," and reached headquarters too late to be of practical use.

The various bureaus of the War Department, under the commanding general, had labored faithfully to fully equip the volunteers, and yet with their best efforts most of those at Tampa were not prepared to engage advantageously in a

campaign. Among other desirable supplies needed, except perhaps in one regiment, were modern rifles and smokeless powder. This was the condition when about 7 p. m. on the evening of May 30 the following telegram was received at corps headquarters from Washington: "Admiral Schley reports that two cruisers and two torpedo boats have been seen in the harbor of Santiago. Go with your force to capture garrison at Santiago and assist in capturing harbor and fleet."

It should be recalled this problem was presented with all the suddenness of the electric telegraph. The capacity of the transports fixed a definite limit to the force that could be taken. There was not sufficient transportation for the cavalry division to participate, unless it went dismounted. It has ever been a source of satisfaction to me that I was in position to speak earnestly on this subject to one in authority, and to point out we were trained and daily practiced in fighting on foot, and that the dismounted cavalry could operate as so much additional infantry, armed with a modern weapon, which would be equally as good as the rifle in the broken and wooded country around Santiago. This view was not accepted without protest by some of our cavalry friends, who contended such action, even if temporary, would deal that arm a serious blow. It was, however, necessary to go dismounted or to stay at home. The results proved the wisdom of the course adopted.

The necessary orders designating the troops to participate and the supplies to be taken were, if I remember correctly, completed about 1 a. m. on the 31st, and sleepy orderlies were awakened to dispatch the orders to their several destinations and to start the machinery of the campaign of Santiago. It was proposed to take the Fifth Army Corps, three divisions, commanded by Kent, Lawton, and Snyder; a battalion of engineers, a detachment of the Signal Corps, five squadrons

of cavalry, under special instructions; four light batteries and two batteries of heavy artillery.

As we were reasonably certain to have to lay siege to Santiago, and the result of the approaching naval battle could not be foreseen with certainty, prudence called for a large quantity of supplies. The limited railroad transportation, and the inadequate facilities at Port Tampa for embarkation, made it simply impossible to accomplish the work with the dispatch desired, and when on the evening of June 7 orders came to sail at daybreak, with not less than 10,000 men, confusion and irritating delays were unavoidable. Snyder's division, armed with the Springfield rifle and supplied with black powder, and which was yet materially lacking in training and equipment, was ordered to remain at Tampa, and the dismounted cavalry was increased from five to twelve squadrons.

The wharf at Port Tampa was too small for the speedy embarkation of so many troops, and as the regiments had to be assigned in haste to vessels, undoubtedly there was lacking that clockwork precision which is desirable in military movements, but to obtain which, time must be given to carefully arrange details, money must be expended to secure conveniences, and officers and men instructed in what is expected of them. Three months later the reembarkation of the army at Santiago was much more systematic, although it was practically an army of sick men, and a year later I saw several thousand troops embarking at the same time in San Francisco. There the desired precision had then been obtained, time had permitted ships to be properly arranged to receive troops and their supplies, conveniences had been provided, and profiting by the experience of 1898, a board of officers was convened in the fall of that year and carefully worked out very satisfactory transport regulations, and what had been difficult at Tampa was an easy problem in San Francisco.

Of course there was little rest for anyone belonging to the

expedition on the night of the 7th and 8th and the next day. Perhaps my experience was that of many. I recall rising at 5 a. m. on the 7th and not lying down, or even closing my eyes, until 10 p. m. on the 8th. Then we were aboard our transports, some of which had already passed to the lower bay. Officers in the headquarters ship, the *Seguranca* had retired for a much-needed rest when, about half past 10, I was awakened and handed an alarming dispatch about the close proximity of a Spanish fleet, which was afterwards called "the phantom fleet." At this time our only naval protection was a few small vessels, for the larger war ships were to join us later. There was nothing to do but to recall with the utmost haste the transports already passing to the lower bay.

"The phantom fleet" delayed our sailing until the 14th. These six days would have been very valuable had they been given to us to move the army from Tampa to Port Tampa and to embark it. As stated, we sailed with 815 officers and 16,072 enlisted men, including General Bates's brigade. In the latter there was one squadron of the Second Cavalry, the only mounted troops accompanying the expedition. With the exception of one dismounted regiment of volunteer cavalry, armed with the Krag-Jörgensen carbine, and two regiments of volunteer infantry, armed with the Springfield and provided with black powder, the entire force was taken from the Regular Army.

As will be remembered by many here, the sailing of the fleet was an inspiring sight. The necessary orders for disembarkation were prepared en route, but before issuing the same the commanding general thought well to consult with Admiral Sampson and General García. This was done, and the advisability of disembarking at Daiquiri was confirmed. I do not recall it was necessary to change in any respect the general order previously prepared. Those who were present

will never forget the lively cannonade on the morning of the 22d by the Navy of the hills about Daiquiri as a precaution against possible attack by a hidden enemy upon the troops landing in small boats. The coast was rocky and precipitous and the sea was somewhat rough, but the army—nearly 17,000 men and officers—was landed at Daiquiri and Siboney, 8 miles nearer to Santiago, with the loss of only two men, and by the evening of the 24th disembarkation was practically complete.

The orders for June 24 contemplated General Lawton's division taking a strong defensive position on the Santiago road a short distance beyond Siboney. Kent, who disembarked at the latter place, was to occupy it and its environments; Bates was to take position in support of Lawton, while Wheeler's division was to remain on the road between Siboney and Daiquiri. These positions were to be held until the disembarkation of the troops and transportation was completed and a reasonable supply of subsistence stores and forage landed. However, one brigade of the cavalry division passed beyond Lawton on the night of the 23d and 24th and became engaged next morning with a Spanish force intrenched near Las Guasimas, about 3 miles beyond Siboney on the road to Santiago. The plans of the brigade commander were skillfully prepared, and after a very gallant attack the enemy was driven from his position. While the army commander did not desire or intend that this engagement should take place at this time, nevertheless victory is always welcome, and this one gave us a camp ground in a well-watered country nearer the enemy. It resulted in hurrying the troops to the front before the desired supplies were landed and before the transportation was in order to work to the best advantage, adding in this way somewhat to the discomfort of the command.

Earnest and untiring efforts were continued to unload the

necessary land transportation and subsistence supplies. The officers in charge of this work showed both ability and zeal, and no one who was not immediately connected with this part of the problem can properly appreciate the difficulties encountered and the labor performed.

On June 29 information reached the commanding general that Pando, with 8,000 reenforcements for the Santiago garrison, was en route from Manzanillo. The letter giving this information was handed to me by General Shafter with the remark, "What do you think?" I replied, "We can not fight too soon." This was also his opinion, although he fully appreciated the army was lacking in many comforts and that more complete preparations might be made if the attack was delayed; but we were in a sickly climate; the one narrow and difficult trail available to bring forward supplies might be rendered impassable at any time by the copious rains; a storm might drive the transports to sea with the great bulk of our supplies and temporarily force the Navy to uncover the mouth of the harbor, and finally a very considerable reenforcement was en route to the enemy. Under these conditions it was determined to give battle.

On June 30 the commanding general in person reconnoitered the enemy's position. From the hill upon which Grimes's battery afterwards took position the city was in full view, and also the intrenchments on San Juan Hill and the country about El Caney lying to the right as we looked toward the city. The roads were little better than bridle paths until the San Juan River and El Caney were reached. At the latter place the Spaniards had a strong outpost, and it was important to them as holding the road to Guantanamo, where they had a considerable force, and from it they could easily assail the flank and rear of any troops attacking San Juan Hill. The attack at El Caney was assigned to Lawton, who thought he could capture it in two hours, and then move

on Santiago and join the right of the cavalry division, which, with Kent's, was to advance on San Juan Hill via El Pozo. All this was explained to the division commanders at a conference at Corps Headquarters on the afternoon of the 30th.

The remainder of the afternoon and night was devoted to moving the troops forward and to other preparations for attack. Bates's brigade at Siboney was ordered forward.

At 3 o'clock on the morning of July 1 I entered the tent of the commanding general. He said he was ill and feared he would not be able to participate as actively in the battle as he had anticipated and desired. He then asked several questions and gave some directions. Over-exertion in the intense heat of the sun the day before had brought on a severe and painful, although not a serious, illness. It gives me pleasure to bear witness to the indomitable will General Shafter showed to keep in touch with events and the persistence with which he held, while suffering, to the work laid out, and it is also my pleasure, as well as my duty, to say that physical weakness did not turn him from his course or in the least shake the courage of his convictions.

Early morning of July 1 found Lawton in position to attack at El Caney, and Sumner, in temporary command of the cavalry division, in the vicinity of El Pozo, near which the head of Kent's division had arrived. Bates was well on his way to the front.

Lawton's artillery opened a quarter after 6, and on that part of the field the action soon became general, and was hotly contested. The enemy's defense was gallant in the extreme. He had shown lack of aggressiveness during our disembarkation and advance, but there was no discount on his fighting behind intrenchments. Two hours passed, and although the rattle of small arms told that Lawton was fighting hard, there was no indication he would soon be ready to fulfill the second part of his programme—that is, to unite

with the cavalry division; but there was grave danger that further delay on the left might enable the enemy to concentrate at El Caney and beat him before the balance of the army was in position to attack. To prevent this possible contingency Sumner was directed to move forward at once, cross the San Juan River and deploy to the right, with his left resting near the Santiago road; and later, when Kent arrived at El Pozo, the enemy's position, intrenchments, and blockhouse on San Juan hill—all of which were in plain view—were pointed out to him. Grimes already understood the blockhouse was to be his first target. Kent was told that after crossing the river he would deploy to the left, with his right resting near the Santiago road. At 8.20 Grimes was ordered to open. His fire was effective, and the enemy were seen running away from the vicinity of the blockhouse. This fire was soon returned and with some effect. Grimes's range was about 2,500 yards.

The road from El Pozo to the San Juan River, about a mile, was narrow and so overgrown in places it was difficult for a column of fours to pass. The advance was painfully slow, and it was only at this time that I, and perhaps others, had any apprehension as to the result. With the troops once across the river, there never was, either that day or the next, any good reason to doubt ultimate success.

While this unsatisfactory progress was being made in front of El Pozo the action at El Caney was still earnest, and as Bates had reported in person to General Shafter he was ordered about 10 a. m. to proceed with his brigade to El Caney and render such assistance as might be practicable. This he did most effectively, and, although he had marched much of the night before and had passed the greater part of the day in marching and fighting, midnight of the 1st and 2d found him in position to protect the extreme left of Kent's division, where his arrival was most opportune.

To return again to El Pozo, it will be recalled the long-ranged rifles of the Spaniards enabled them to kill and wound a number of our men as the column of fours was moving slowly forward. At this time Kent and Sumner were ordered to push forward with all possible haste and place their troops in position to engage the enemy. General Wheeler had come up in the meantime, and after the enemy's position and our points of attack were pointed out to him he went forward to join his command.

A short distance before reaching the river the road forked, and upon arriving at this point the First Division (Kent's) was able to move more rapidly, the greater part following the left-hand branch, and, crossing the stream, formed for attack directly in front of San Juan Hill. During this formation the Third Brigade (Wikoff's) suffered severely, and its gallant leader fell mortally wounded; then Worth and Liscum, to whom the command fell in turn, were wounded. The movement continued, however, and the troops were now rapidly formed for attack.

Sumner formed, as ordered, to the right of the Santiago road and struck the enemy near the stream, on what was afterwards called Kettle Hill. Here a fierce conflict took place, and the enemy was only driven back after the utmost gallantry on the part of our officers and men. While Wheeler's division found the Spaniards close by at Kettle Hill, Kent had a wide bottom in his front, which led directly to the foot of the San Juan Hill, along the crest of which the enemy was strongly intrenched. Nothing daunted, the gallant men of both divisions pushed on under heavy loss to drive the Dons from their chosen position. Officers whose names we honor and will ever hold dear laid down their lives in cheering their men on to close with the foe, and to the living none but words of praise are due. We will not particularize, but will content ourselves with saying that words

fail to do justice to the gallant regimental officers and their heroic men, for, while the generals had placed them in position, it was, after all, the intrepid bravery of the subordinate officers and men that carried our colors to the crest of San Juan and thus sealed the fate of Santiago.

As the long line struggled up the steep hill, part halting here and there to fire, and then again rushing on, the general effect was that of a uniform advance. It resembled a blue ribbon, one end flung out from the hand and fluttering in a gentle breeze, one moment some points of this blue line were a little in advance, only to be overtaken and passed by portions a moment before in the rear. An Attaché of one of the great powers, speaking more to himself than to me, said, "The world never saw better troops," and he was right.

The enthusiasm of battle thrills the mind even in after days, but the battlefield also leaves painful memories. It will not be inappropriate to mention here an incident that painfully affected me. Four soldiers were seen bearing a man on a litter; his face was covered by a bloody cloth; he was motionless, and I thought perhaps dead. A friend was walking by his side, and in answer to my look of inquiry said, "No, he is not dead, but if he lives, he will never see." The bloody bandage covered the face of one we meet to-day with pride and pleasure, and with congratulations that sight was not taken from him. I speak of the distinguished Superintendent of this Academy.

We can not dwell long upon the siege of Santiago. The morning of the 2d found Wheeler and Kent intrenched on San Juan Hill. Bates was perfecting his position on the left, and Lawton was forming on the right of the cavalry. During the 2d the battle continued at intervals with more or less fury, but our troops held fast to what they had gained, and two additional regiments of volunteers arrived. By the

night of the 2d the army was ready to begin a systematic siege, and the next morning the Spanish fleet that had been lying in the harbor for weeks practically undisturbed put to sea. We were told Admiral Cervera had said "it was better to die fighting than to sink his ships." Before going, however, his naval forces had rendered very able assistance in the trenches, and in turn sustained considerable loss. The news of the great naval victory that followed was enthusiastically received by our troops. Like the battle of Manila Bay, it was complete and cast imperishable renown upon our Navy, of which the Army was justly and enthusiastically proud. This victory was the deathblow to Spanish power in the Western Hemisphere. It will be recalled General Shafter's orders of May 30 were: "Go with your force to capture garrison at Santiago, and assist in capturing harbor and fleet." The garrison and harbor fell to the Army in due time, and when it is remembered Cervera had been at Santiago for weeks, and left a few hours after the Army had completed its concentration in front of the city, can it be said that the Army did not do its full share in capturing the fleet? Certainly, if the Army had not been at Santiago, there is no reason to believe the crushing defeat that fell to the Spanish squadron would have occurred on July 3. It must then be admitted that the Army at least hurried that very desirable end.

At 8.30 a. m., before Cervera sailed, a step was taken that had a decided bearing on the siege of Santiago. A demand was made on the Spaniards to surrender. Substantial results were hoped for from this demand, and were realized, for although they declined to comply at the time, hostilities practically ceased, and it was quite evident the enemy was ready to quit as soon as he could do so with honor.

Our Army could not, however, escape hardships in the trenches under a tropical sun and rain that fell in torrents;

it was lacking, too, in comforts and conveniences, which could not be supplied. In a sickly climate disease attacked our unacclimated troops, and ere they sailed for Montauk Point it was indeed an army of invalids. Toral's surrender enabled us to select better camps, but the change came too late to restore health.

The formal surrender, which included the district and 24,000 troops, took place between the lines on the 17th, each army being represented by 100 men.

The campaign of Santiago was one of constant toil and hardship, but more was garnered than we were sent to gather. The Army carried itself in a manner deserving the admiration and unstinted praise of the nation. It fought gallantly and hung on persistently, though disease continued the deadly work the bullet began. As was said while we were camping among the beautiful hills about the city, all who "participated in the campaign, battle, and siege of Santiago de Cuba, will recall with pride the gallant deeds accomplished, and will hold one another dear for having shared great suffering, hardships, and triumphs together; all may well feel proud to inscribe on their banners the name 'Santiago de Cuba.'"

This surrender practically terminated Spain's efforts in the West Indies; but on a far field, in the Orient, Merritt, with 10,000 men, had gone to hold what Dewey's genius had brought us.

With our present knowledge we realize a campaign in the Philippines was almost inevitable, but it may surprise many, as it certainly did me, to see a statement from ex-Secretary Alger that our Government had decided to send an army of occupation to the Philippines before the receipt of the news of Dewey's victory. This information came on the 7th of May, and as early as the 4th orders were given for the assembling of western volunteers at San Francisco intended for the

Philippines as part of a plan "in further prosecution of the measures adopted by this Government for the purpose of bringing about honorable and durable peace with Spain."

General Merritt's selection to conduct this campaign met with the approval of the entire country, and no doubt existed as to his ability to execute successfully this novel expedition that was to carry our flag to the very doors of China, seven thousand miles from home.

San Francisco afforded every convenience for mobilizing, supplying, and embarking an army. The railroad facilities were excellent and harbor accommodations ample. As a result the difficulties experienced at Tampa were not encountered at San Francisco. The troops, designated as the Eighth Corps, sailed in seven expeditions from May until October, but only three arrived in time to participate in the siege of Manila. Those three were commanded by Anderson, Greene, and MacArthur, in the order named, and comprised 470 officers and 10,464 men. General Merritt accompanied the third expedition and arrived in Manila Bay July 25. He found Anderson and Greene encamped with approximately 6,000 men at Cavite and on the beach about 3 miles south of Manila. The presence of our victorious war ships of course gave protection to this small force confronted by an enemy more than twice their number. The situation was made even more difficult by the attitude of the armed Filipinos under Aguinaldo. Just what their course and pretensions would be was uncertain, but their presence demanded from the commanding general the exercise of great tact. For various reasons their services were not desired, and yet their enmity was to be avoided.

The major part of General MacArthur's troops arrived July 31, but on account of the high surf they were unable to land until the 7th of August.

The Spanish position at Manila was both naturally and

artificially strong against a land attack. The old or walled city, in the form of a quarter of a circle, is washed on the west and southwest by the waters of the bay. On the north the deep Pasig River divides it from the new city, and on the east and south it was surrounded by thick walls and moats. One and one-half miles to the south the Spaniards had built intrenchments covering the roads leading to Cavite. These works extended from Fort San Antonio-Abad, on the bay, southwest to blockhouse No. 14, nearly a mile. In rear of these was a second line of trenches, extending from Malate to Cingalon. The country south of the first-mentioned intrenchment was almost impassable for troops except along the beach and on two roads—the Calle Real, running near the beach, and the Pasay road, parallel to the first and about half a mile west. Facing the Spanish breastworks at a distance of about three-quarters of a mile, the insurgents had intrenched from the beach to the Calle Real.

General Greene was empowered to arrange with the Filipinos to permit our troops to pass their line to intrench nearer the enemy. These delicate negotiations were accomplished successfully, and on the night of July 30 he threw up breastworks about 100 yards beyond those occupied by the Filipinos, and of course that much nearer the enemy. The next night the Spaniards opened fire on Greene's new position, which was held by a small force. The enemy's fire was heavy and our loss was 10 killed and 43 wounded.

This was the Army's baptism of fire in the Philippines, and it acquitted itself most creditably. The proportion of Regulars to Volunteers in the Eighth Corps was very small, but the latter had put their time to good use and they showed to advantage in their first fight. The fire from the enemy's trenches was renewed on the 1st, 2d, and 5th of August. The American losses for the four nights were 15 killed

and 53 wounded, but the preparations were not sufficiently advanced to permit them to take the offensive, and the troops remained in their trenches, annoyed certainly, but in no way shaken. Upon MacArthur's disembarkation on the 7th, Merritt organized his entire force, practically 10,000 men, into a division under Anderson, with Greene and MacArthur as brigade commanders.

On the same day, the 7th, the Spanish commander was informed that operations by land and sea might begin at any time after the expiration of forty-eight hours, and two days later a demand was made for the surrender of the city. The Spanish general requested time to submit the question to his Government, which was refused, and operations for a joint attack by the Army and Navy were commenced. The attack on San Antonio Abad was assigned to Greene; that against block house No. 14 and the works at Cingalon to MacArthur. The Navy was to assist directly by shelling the trenches near San Antonio Abad. The attack opened at 9.30 a. m. on the 13th, one day after the signing of the peace protocol, which was not known at Manila until the 16th.

The enemy were quickly driven into the city, although they held on for a time to Cingalon with considerable obstinacy. The white flag was soon displayed on the walls, and the articles of capitulation were signed the next day. These included 13,000 prisoners and 22,000 modern small arms—certainly a rich harvest.

If the fighting at Manila was not sanguinary, there was full scope for and a display of those characteristic American qualities—self-reliance and audacity. These traits have been bred in our bone for centuries, and are an inheritance from ancestors, who acquired them in their conquest of a continent. Merritt and his army were not dismayed by confronting an intrenched enemy, superior in numbers and better armed than themselves. These obstacles served to call forth that

which is greatest in the American character—an indomitable will to succeed. The story of the achievements of these men reads like a novel, and reflects credit on them and the country that sent them on their distant mission.

This surrender practically terminated the Spanish-American war, although the Senate did not recommend the ratification of the treaty of peace until the 6th of February, 1899. In the meantime General Merritt's successor, General Otis, had to deal with one of the most difficult problems ever presented to a soldier. It was different from that encountered in Cuba, for in regard to that island our intentions had been definitely announced, and we possessed the friendship and had the assistance of the people as far as their political education permitted them to help. In the Philippines we found enmity, engendered by the ambitions of a few designing men working upon the ignorance of their countrymen. No one could say certainly what the fate of the treaty would be concerning those islands. When the prejudices of the day pass away, and the seeker after truth writes his history, another generation will hold in high regard the incomparable efforts in the reestablishment of order and government displayed by Elwell S. Otis.

The Spanish-American war belongs to the past. The pledge we gave ourselves and the world as to Cuba has been faithfully kept and already made good. The deed we set out to do is an accomplished fact, and well performed. There is another great work, about which we gave no pledge, and which was not of our seeking. It came to us as if guided by the hand of God, and under His guidance the American people will do their full duty to those that destiny, or what you will, brought to them. The audacious soldiers who served under Merritt in August, 1898, were followed by another army who have labored well in a great cause. You may pick flaws, gentlemen, here and there. An army of

65,000 men would not be human if that were not possible, but those of us who have served in the Philippines know well the grand and good work accomplished by our Army. We know it has not only conducted successfully one of the most trying guerrilla wars known to the annals of history, but that while doing this it laid the foundations for civil government in that country, and the time will come when the people of the Philippine Islands, living under the flag planted by our Regulars and Volunteers, all honor to both, will bless the day when the first American soldier set his foot on Luzon, to engage in that long, trying, and often disheartening conflict which, in the end, will give the Filipinos good government and make them a happy, prosperous, and self-respecting race. The work of the Army in the Philippines will stand the test of time, and as we recede from the work its grand deeds will stand out and its few errors sink into insignificance. The gallantry it has shown, the hardships it has suffered, the wise and humane acts it has performed, its labors in reestablishing order and in blazing the way for a more perfect civil government than the Orient has ever known, will all show clearly under the searchlight of history to the honor of the Army and the glory of our country.

THE CENTENNIAL BANQUET.

THE CENTENNIAL BANQUET, JUNE 11: RESPONSES TO TOASTS.

OUR GUESTS.

By Signor Edmondo Mayor des Planches, Ambassador of Italy to the United States.

MR. PRESIDENT, Gentlemen of the Cabinet, Colonel Superintendent of the Military Academy, Gentlemen: I have the honor, speaking in the name of your foreign guests, to thank you heartily for the kind invitation extended to us, in order that we might participate in this gathering, which can rightfully be considered a family festival, and to thank you also for the generous hospitality you offer to us.

We accepted your invitation with the warm interest we take in every American event. Upon our arrival here, our natural feeling of curiosity was immediately changed to one of admiration, because everything calls it forth irresistibly, from the beauty of the remarkable location to the minutest details, as far as revealed to us of this institution, one of the finest of its kind in the world.

Within these walls many remembrances of your history recur to our minds. We recall that Sherman, the audacious leader of the "march to the sea;" that McClellan, whose genius checked the invading armies at Antietam; that Sheridan, who snatched victory from defeat in the valley of the Shenandoah, and his adversary, Early; that Thomas, the hero of Chickamauga, and his opponent, Hood; that Grant,

GRANT HALL—CADET MESS. (BUILT 1850.)

the glorious victor, Lee, the glorious vanquished, of the last battles of the civil war, and many others whose deeds of valor have filled all lands with wonder, have graduated here. When an institution has such a glorious past it will have a similar glorious future.

To my admiration, I confess, was joined at first a certain, yes, and even a double, surprise—the surprise of finding an already old institution in your young country and that of finding myself, a man of peace, among warriors. But into this centennarian Academy passes a spirit of perpetual youth as these brave and bold generations succeed one another; and even nonmilitary men, like myself, can appreciate the immense benefits of such a school, in which you not only prepare young men for possible wars, but also give them the most desirable education that youth can receive in our times, exercising them in such qualities as are considered the best in human nature, the most necessary in social life, the most useful in the citizen of modern States, for the battles of life and the pursuit of liberty.

I am, for my part, an advocate of military education. I would wish that every citizen might be trained in a military school; not so much, of course, for the technical knowledge he acquires, but for the establishment of his moral character upon a firm basis.

In a military school youth learns the great virtue of discipline, and discipline is a condition of order; youth developes its innate feeling of honor, and honor is a gurantee of integrity in private and public life, of the fulfillment of duty in peace as in war; in a military school youth grows in an atmosphere where no material interests are concerned, where self-abnegation, sacrifice, devotion to the country, are the ideals constantly before the mind.

I profess that a perfectly good soldier is almost necessarily a good citizen; that a perfectly great soldier is almost

necessarily a great citizen. The history of your country could supply many examples of this truth. But what example could I evoke more opportunely, in this place, in this moment, than the example of your great Washington, the world does not know whether greater as a soldier or as a citizen, of Washington, with whom originated the idea of a military academy for his country?

With these sentiments, with this example before us, I beg, Mr. President and gentlemen, to drink, in the name of your foreign guests, to the prosperity and greatness of the United States Military Academy of West Point.

AMERICAN UNIVERSITIES AND COLLEGES.

By Dr. William R. Harper, President of the University of Chicago.

MR. PRESIDENT, Mr. Superintendent, Gentlemen: The honor of representing, on this occasion, the American universities and colleges is indeed a great one. The high position now universally accorded this particular factor in our American civilization is attested on the one hand by the constantly increasing facilities for higher education provided by the Federal and State governments and by corporations or individuals; and, on the other, by a demand for the advantages thus proffered which, up to the present time, has not been adequately satisfied.

The centennial of the birth of one of these American institutions furnished excellent opportunity not only for rejoicing, but as well for reflection.

An institution of one hundred years must have in itself elements of strength, to the existence of which is due the fact that it has been permitted to enjoy so long a period of existence; and further, these elements of strength, these characteristics, must be worthy of the consideration of sister institutions, older and younger, as furnishing ideals of educational method and policy which have produced splendid results in one environment, and from which, even under different circumstances, good may be expected.

What, now, is West Point's message to the educational world? This is a question not to be answered in a five-minute speech, and least of all by one whose acquaintance with the institution is so slight as my own. And yet it is possible to state in few words the great ideas for which the

Military Academy has stood, as these ideas have found expression on the lips of those who best understand its work.

The first of these is concentration of effort. The purpose has been a single one, the supreme spirit has been characterized by unity. No disposition has existed to dissipate the effort of instructor or student by undertaking to do things other than those directly and absolutely involved in the particular purpose for which the school was founded. Its definite purpose has never been lost sight of.

Another of these characteristics has been the degree of thoroughness demanded in the work. Every educator is compelled to admire that policy which limits the membership of the sections arranged for classroom work to 8, 10, or 12 students, and to place in unfavorable contrast with it that other policy, so generally adopted for financial reasons in all our institutions, which assigns to the same section for recitation or lecture 40 or 60, or even 100 students. The spirit of accuracy developed under conditions which have existed here at West Point, the high degree of thoroughness thus made possible, are of inestimable value.

A third characteristic has been the spirit of subordination, of obedience, engendered in the student. It is true, of course, that in preparation for a military career such training is fundamental. But it is to be observed that a large proportion of the alumni of this institution have entered civil life and occupy high positions in the various professions and in the different fields of business activity. Such training has evidently produced satisfactory results in all these cases.

I appreciate the fact that the question I am raising touches vitally the most sacred articles in the creed of the modern educator. I understand that it is to-day a piece of pedagogical heterodoxy to look with any favor upon an educational policy which is not based upon the idea that the student must be allowed to follow his own sweet will in selecting his

courses of study, his hours of study, and his methods of work. At the same time, I venture to ask whether in the application of this modern educational policy we have not gone too far; whether it has not been applied to fields of work in which it had no place; whether, for example, it would not be well for every boy to have at one stage or another of his development, a period of discipline at all events similar to that which is called military.

But this is not the time for a pedagogical discussion.

The universities and colleges of America, one of which is the United States Military Academy, have, during the last quarter of a century, taken many forward steps in connection with the country's progress in other departments of its activity. No greater changes have taken place in methods of commerce, or of transportation, or of communication than those which have come in methods of higher education.

These changes may be summed up as (1) those that have arisen from a larger sympathy with life in the world at large; for the student to-day goes out into the world, instead of shutting himself away from it; (2) those which have come from the desire to deal with the student as an individual and to give free scope to individual development; for it is in our time that the doctrine of individualism is really beginning to bear fruitage in state and church; (3) those which owe their origin to the growth of the spirit of association and cooperation; for institutions work together now as they did not half a century ago, and from this cooperation beneficent results have grown; (4) those which are rooted in the effort to take a higher place in the world's education; for the tide has already begun to turn, and men are now coming from the Old World to study in American institutions of learning.

I say that great progress has been made; but much still remains to be done, and of all that remains nothing is more

important than that our universities and colleges shall undertake to do larger work in cultivating the spirit of patriotism.

I do not mean mere "jingoism;" nor do I forget that in the recent war with Spain college men went forth in great numbers and with enthusiastic spirit. I have in mind intelligent patriotism; a patriotism that is deep and soul-stirring; a patriotism that controls life, and life in time of peace as well as in time of war.

Let every institution of learning become a seat of righteous judgment against iniquity, a stronghold of courageous conviction for truth. Then will virtue rise supreme and the Kingdom of Heaven have come.

CONGRESS AND ITS RELATIONS TO THE MILITARY ACADEMY.

By the Hon. DAVID B. HENDERSON, *Speaker of the House of Representatives.*

[No report of this response has been received.]

THE ARMY.

By Lieut. Gen. NELSON A. MILES, U. S. Army.

GENERAL MILES, in speaking to the Army, said in part: "Our military force has not only been chiefly instrumental in achieving our independence, but it has been the vanguard of civilization, the pioneer of our development and progress, the defender of the home builders, and has borne our flag in triumph over the battlefields of a century.

"The Army has passed through various stages of expansion and contraction, yet it has gradually grown in strength and efficiency commensurate with the needs of the nation. It should never be decreased to that extent that it will become so weak as to be unable to give adequate support to the civil government of our country, and at the same time it should never be expanded to the extent that it might constitute a menace to our liberties."

"Whether the country shall be prepared or unprepared for war," he continued, "depends entirely on the wish of the people and the action of Congress. There was not any army or corps of any army on the earth better equipped with skillful, efficient and experienced officers and brave, intelligent, physically perfect men than our little Army in the spring of 1898. Yet, with complete equipment for perhaps 10,000 additional men, the Government found itself wholly inadequate to supply and equip an additional force of 250,000 men in a few days or months. In fact, although 52,000 men left the country before the war was over, and even before a large volunteer force could be properly organized,

instructed and equipped, the regular force was, however, prepared to take the field within twenty-four hours after receiving its orders, and was mobilized within five days. Whatever strength is authorized by Congress, the Army will be maintained at the highest state of efficiency, and will ever be ready for any service or sacrifice that it may be called upon by its Government.

"To this end it is essential that its officers shall be thoroughly trained in all the art and science of modern and civilized warfare. Washington realized the need of experienced scientific officers, and this institution, conceived and urged by him, has contributed largely to the efficiency, the skill and military science that has done so much to bring success to American arms. Here truth, justice, honor, and moral courage are maintained as the essential principles governing those in the military service, especially those who are to mold, discipline, instruct, command, and lead the military forces of our country. This institution, in which Washington, Scott, and Sherman and their associates were so interested, has grown from the most primitive condition to one of great importance, and stands first among the great universities of the world."

THE NAVY.

By Capt. FRENCH E. CHADWICK, U. S. Navy.

IN answering for the Navy on such an occasion as this I think I can best fill the five minutes to which the Superintendent so kindly limited me by recognizing what the Navy of to-day owes to West Point, which is, in a sense, our alma mater, as well as your own. Had it not already existed for many years it is but fair to say that the Naval Academy would have been an institution of much later date than it was. You gave us our first system of organization, our regulations, our methods. In fact, West Point had worked out for us, in the half century preceding the advent of the Naval Academy, the details which are of such vital value to a great school, and which stand to-day, to a great degree, in each unchanged.

And there has been an interlacing of West Point names with the Naval Academy which has reflected honor on both—that of Mahan, which represents a name honored in West Point history as well as in the Navy, and, indeed, I may say wherever and by whomsoever the subject of war is studied or read.

Another is that of Lockwood, a West Point graduate, who did so much to start us fair at Annapolis, and to whom the Navy will always feel a deep indebtedness.

I should like to dwell a few moments on what I hope I may mention as the increasing unity of our two services. Our English brethren have long had the phrase "The United

Service" in clubs and in literature, but in the old days of sail it was not much more than mere words. Steam has altered our relationship. A fleet now marches so many miles a day with the same certainty as an army. We have our lines of communications to be preserved in a much more vital sense than formerly, and the necessity of this preservation is as imperative to us as it is to you. With the Army it is chiefly a matter of its provisions; with the Navy it is coal. Without the latter we are as helpless as you would be without the former.

The old-fashioned way of keeping the sea with a fleet which should be absolutely self-supporting for many months through the supplies it was able to carry is a thing of the distant past, and we are bound down by this exigency to certain difficult conditions from which, one may say, we were once almost practically free. We have now to have a constant train of coal ships as you your supply trains, though I must say that we still have an advantage in the fact that the sea offers an infinity of routes from which to select. We have come also to see that naval strategy is twin brother to that of the Army, and in fact that the army of the sea differs from the army of the land but little in its needs, its ways, and in its studies; the essential difference is in the way it is moved. We have found that naval thought, when it deals with war problems, must run in the same lines as yours; that the study of campaigns ashore is almost as essential to us as of those afloat; that in fact there is a basic similarity in the ways in which we must look at things which must tend of necessity to the increased good understanding and sympathy for which we should all strive and hope.

The naval man has, I may say, however, reason to rejoice that coal is the great necessary about which he must worry, and not, as in the case of the Army, about what he shall

eat. This difference was forcibly brought to my mind in 1898, knowing that under the rain clouds which swept every afternoon over the valleys east of Santiago were thousands of our men, soaked and unsheltered, with but a rather short supply of hard-tack and bacon, while the sailor man had a deck over him and everything he wanted short of beer. I knew that under these rain clouds, which somehow persistently stuck to the shore and avoided the sea, were a lot of good fellows, whom I had known many a year, who deserved everything and whose discomfort and suffering I hated to see. I never was so desirous of sharing with my fellow-man whatever I had to eat or wear. While you were being drenched in the trenches, Jackie, if he happened to wear shoes, which was but seldom, was not even allowed to have wet feet. It may surprise some to know that he is coddled, so to speak, to this extent; but if there is one thing ingrained in the naval officer's mind it is to get his men into dry clothes at the earliest possible moment. Our tropical service has taught us the value of this, as it no doubt has taught yourselves, only that with us happily the thing itself is attainable.

Army grit, however, surmounted the disabilities, and whatever damage was done was happily transient. I see many to-night who must compare this festive board with their fare of four years ago. Their trials left some at least with undiminished energy, and it has given us an honored head of the State and a Commander in Chief whose ardor is as true and wholesome as when its sphere of activity was San Juan Hill.

These trials gave also to West Point a superintendent whose heroic and suffering experience deserves all honor, but they brought with them some mournful memories, the chief of which, to myself, is associated with the honored name

of Michie, beloved of all of us, who bore manfully the grief which came to him before Santiago. I do not think I can express a better wish for West Point than that it should continue the ideal which was embodied in this our old friend and fellow-soldier. So doing, it shall build in the esteem and affection of the nation as solidly as its walls now stand upon the granite of its everlasting hills.

THE STAFF AND THE ARMY SCHOOLS.

By Maj. Gen. HENRY C. CORBIN, U. S. Army.

IN THIS presence it is not necessary to set forth in detail the importance of work of the staff of the Army. Every one here understands full well that good work by the man behind the desk is quite necessary to provide efficient men behind the guns, but in the mind of the public it would be well if this fact could be better understood. It is from the staff that all efficient armies have their being. Laws for the government of, and appropriations for the creation of an army, are necessary but amount to little until made effective by staff administration. The recruitment, equipment, and assembling of men, and their formation into military units, is but the beginning of staff work. The making of arms and ammunition for a modern army—think what that alone means—and of the other machinery that must be put in motion in supplying clothing, camp and garrison equipage, land and water transportation, subsistence, and pay, medical and hospital supplies—the work of the Engineers and of the Signal Corps; the latter is but a suggestion for quick communication and connecting the army with its base of operations.

How many ever stopped to think of all that was necessary to have General Shafter's army on its march to Santiago, and the army of the Philippines, with all its ramifications, always within speaking distance with Washington. Think of it! And this was so with General Chaffee and the allied forces in their victorious march to Pekin; and it was left to our army to do this and to announce to the world the glorious victory of that expedition. It was here that the work of

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our staff called forth the admiration of the older armies of the world. Our transportation, food, care of the sick and wounded, the work of our engineers, our arms and ammunition all were superior to any others there. Our soldiers were as brave as the bravest, and the most intelligent. A foreign officer speaking of them said: "The trouble is that American soldiers are so intelligent and fine looking it is difficult to distinguish officers from men."

A high tribute to the efforts of the recruiting service which last year, for example, developed 148,000 applicants, from whom only 37,000 were selected as morally, mentally, and physically fit to be entered apprentices to the trade of the soldier in that typically volunteer body of loyal and patriotic citizens, the Regular Army, whose recorded history does not contain the name of a single soldier drafted for its service.

Year by year they come in thousands from the people's best manhood, and to the people they are annually returned upon graduation from the school of the Army with increased knowledge and love of country and a quickened sense and pride of citizenship improved in capacity to perform the manifold duties of that citizenship in peace and war with a loyalty and patriotism faithful even unto death.

Let the graduates of this, the people's great democratic institution of military training, be taught to see to it that every enlisted man and brother in arms, of the thousands annually graduated from the school of the Army, shall return to his people and community a better son and citizen because a master of the soldier's profession in the highest Christian sense, and with respect for his officers and good will for the service.

During the war with Spain there was just complaint of the lack of carefully prepared plans and preparations for military movements and of the way in which such plans as were formed were carried into execution; and this complaint

has often resolved itself into a general criticism of the present staff. As a matter of fact, we have not been justly subject to this criticism, because such organization as would be properly chargeable with such duties was not provided for by law. No need is more marked. The remedy has been urged by a bill prepared by the present able Secretary of War, and having the approval and support of the staff of the Army. This bill is now pending before the military committees of the Senate and House and its final enactment into law is earnestly hoped for.

The wise provision of a detailed staff has done away with any feeling that may have existed between the line and staff. Before the enactment of this law there was just enough feeling in the service to furnish carping critics texts for mischievous essays.

The efficiency of the detailed staff can not be better illustrated than by the career of our late President. Before reaching the age of 18 he, on the 12th of June, 1861, enlisted as a private in Company E, in the famous Twenty-third Ohio, commanded by General Rosecrans, a graduate of this Academy. After ten months' service as a private he was made regimental commissary-sergeant, in which grade he served nearly seven months, when he was promoted to be second lieutenant; sixteen months later he was promoted captain, and on the 13th of March was, for "gallant and meritorious services during the campaign in West Virginia and in the Shenandoah Valley," breveted major, with which rank he was, on the 25th of July, 1865, after more than four years' constant service in the field, honorably discharged the service. It took him a month and a half more to obtain his diploma than is required of cadets at this Academy. While serving as commissary-sergeant he attracted attention by having hot coffee served to the men of his regiment while under fire on the battlefield of Antietam. During this

service as noncommissioned staff officer he became a well-instructed commissary. After five months as a lieutenant with his company he served as brigade quartermaster for more than fifteen months, then for ten months he served as assistant adjutant-general on the staff of those splendid generals, Hayes, Carroll, and Crook; then for nearly four months he was aid and adjutant-general on the staff of another graduate of this Academy, the gallant Hancock.

This training enabled President McKinley to comprehend fully all questions of command, of supply, and administration. It fitted him to meet the requirements of the Constitution that "the President shall be the commander in chief of the Army." That he did so wisely and well, that he died at his post in the zenith of his usefulness, that he won the respect of the peoples of the earth and the undivided affection of the American people is accepted history.

THE VOLUNTEERS.

By Maj. Gen. DANIEL SICKLES, *U. S. Army.*

[No report of this response has been received.]

THE NATIONAL GUARD.

By Maj. Gen. CHARLES DICK, *Ohio National Guard.*

[No report of this response has been received.]

ADDRESS.

By Colonel Von Witzleben, of the Prussian Army, Commandant Cadet School.

MEINE Herren: Gestatten Sie mir, dass ich, des Englischen nicht genügend mächtig, in meiner deutschen Muttersprache einige Worte an Sie richte:

Seine Majestät mein erhabener Kaiser König und Kriegsherr hat die Gnade gehabt zu gestatten, dass ich der gütigen Einladung des Herrn Superintendenten zur Theilnahme an der Jahrhundertfeier Ihrer Militär-Akademie folgen darf. Ich bin glücklich und stolz darüber, dass es mir so vergönnt ist, diese berühmte Pflanzstätte des amerikanischen Offizierkorps und ihre vortrefflichen Einrichtungen aus eigener Anschauung kennen zu lernen. Als Vertreter des deutschen Kadettenkorps überbringe ich der amerikanischen Schwesteranstalt deren wärmste Glückwünsche zu der heutigen bedeutungsvollen Feier. Wir leben der festen Überzeugung, dass es ihr vergönnt sein wird, treu ihren altbewährten Traditionen im Sinne ihres grossen Gründers Washington und treu ihrem schönen Wahlspruch: "Ehre, Pflicht, Vaterland," der Nation und der Armee in den nächsten 100 Yahren ebenso tüchtige Männer und Soldaten zu schenken, wie in den letztvergangenen.

Translation by Lieut. Herman Glade, Fourth U. S. Infantry (U. S. M. A., 1900).

Gentlemen: Permit me, as one unfamiliar with English, to say a few words to you in my German mother tongue.

His Majesty, our illustrious Emperor, King, and Commander in Chief, has graciously allowed me to accept the

kind invitation of the Superintendent to take part in the celebration of the hundredth anniversary of your Military Academy. I am happy and proud that I am thus permitted by personal observation to become acquainted with this famous seminary of the American corps of officers, and with its excellent methods.

Representing the German Corps of Cadets, I bring to the American sister institution their warmest congratulations upon to-day's important celebration. We are convinced that this Academy, true to its long-cherished traditions, imbued with the spirit of its great founder, Washington, and true to its fine motto, "Honor, Duty, Country," will, in the next hundred years, present to the nation and to the Army no less capable men and soldiers than it has done in the hundred years just elapsed.

BANQUET AT MANILA, JUNE 11, 1902.

ON THE 15th of April, 1902, there was organized at Manila the U. S. Military Academy Centennial Association to celebrate the one hundredth anniversary of the founding of the Military Academy. All ex-cadets serving in the Philippine Islands constituted its membership. Its officers were Col. W. A. Rafferty (U. S. Military Academy, 1865), president; Lieut. Col. George C. Greenough (1865), vice-president; Maj. H. C. Carbaugh (1882), secretary and treasurer, and an executive committee composed of these officers and of Col. W. P. Hall (1868), Capt. E. O. Fechét (1868), Col. C. A. Woodruff (1871), Lieut. Col. A. H. Russell (1871), Lieut. Col. G. S. Anderson (1871), Capts. F. de W. Ramsay (1885), B. T. Clayton (1886), W. W. Harts (1889), J. R. Lindsay (1892), J. A. Moss (1894), C. McK. Saltzman (1896), and A. S. Conklin (1897). On June 11 a banquet was given by the association. The menu is a little pamphlet bound in the Academy colors and illustrated with cuts of cadet and of army life. The spirit of the meeting of those graduates far away from home is irresistibly suggested by the make-up of the little volume. Here on a single page is the dreary north front of cadet barracks with its row of immemorial elms, and below it the palms of Manila surrounding one of the outlying blockhouses for its defense. On another page is a cut of cadet guard-mounting in camp and below it an automatic gun in action against Filipino insurgents. Both scenes were familiar to the 108 graduates who sat down to the centennial dinner, but their hearts

warmed to the views of their rock-bound highland home—their country. It was their duty to serve that country well and with honor in a distant land.

As the U. S. army transport *Hancock* was crossing the longitude of 180° W., June 11, 1902, the 34 officers present, representing the classes of 1879, 1887, 1888, 1890, 1894, 1895, 1896, 1897, and 1898, and veterans of the civil war, celebrated the day by addresses and songs in mid-Pacific. Wherever the duty of a graduate called him his heart was with Alma Mater on this memorable day.

CORPS OF CADETS MARCHING TO DINNER, 1902.

PRAYER.

By Reverend HERBERT SHIPMAN, Chaplain.

Graduating exercises, June 12, 1902.

THE FLAG AT WEST POINT.

GOD of all power and might, who alone through all chances and changes changeth not; who leddest our fathers through strife and conflict to the land of their inheritance, and sealed it to a later generation in the blood of those who, loving peace, yet dared to die for truth; as Thou hast been with them, so, we pray Thee, be now with us. In particular, we ask Thy blessing on these Thy sons whose lives are here consecrated to their country's service, and who now go forth to face the opportunities and responsibilities of the wider life awaiting them. May they enter on it conscious that truth alone endures, that beyond all victories and triumphs, beyond all praise that men can give, Thine own "Well done!" alone will satisfy at last.

In the high calling which is theirs, whether it be in peace or in the solemn necessity of war, may their thoughts be high, their hearts pure, their words and actions true.

Be Thou near them always; strengthen them with Thine own strength, comfort them in sorrow, if sorrow come, and in the hour of victory and success let them not forget that he alone is great who serveth Thee, that he alone is strong who bends his will to Thine.

We ask this in His name who lived and died that men might know the strength and power of love, and who, looking beyond the strife and tumult of the centuries, saw of the travail of His soul and was satisfied, our Lord and Savior Jesus Christ.

HISTORY OF WEST POINT—OF THE MILITARY ACADEMY—AND OF THE SERVICES OF ITS GRADUATES IN WAR AND PEACE.

WEST POINT, 1780—REVOLUTIONARY ARMY ENCAMPED. (DRAWN BY MAJOR L'ENFANT, ENGINEER.)

WEST POINT IN THE REVOLUTION, 1778–1783.

By Capt. HORACE M. REEVE,

Seventeenth Infantry, United States Army; General Staff—United States Military Academy, 1892.[a]

* * * The importance of this last-mentioned post is so great, as justly to have been considered the key of America. It has been so pre-eminently advantageous to the defense of the United States and is still so necessary in that view, as well as for the preservation of the Union, that the loss of it might be productive of the most ruinous consequences. A naval superiority at sea and on Lake Champlain, connected by a chain of posts on the Hudson River, would effect an entire separation of the States on each side and render it difficult, if not impracticable, for them to cooperate. * * * Now, as West Point is considered not only by ourselves, but by all who have the least knowledge of the country, as a post of the greatest importance, as it may in time of peace, from its situation on the water, be somewhat obnoxious to surprise or coup de main, and as it would doubtless be a first object with any nation which might commence a war against the United States to seize that post and occupy or destroy the stores, it appears to me that we ought particularly to guard against such an event, so far as may be practicable, and to remove some part of the allurements to enterprise, by establishing the grand arsenals in the interior part of the country, leaving only to West Point an adequate supply for its defense in almost any extremity. * * *—*Washington writing to Hamilton, May 2, 1783.*

It [West Point] is a strongly fortified castle, which, with its dependencies, is considered by General Washington as the key which locks the communication between the Eastern and Southern States; and of all the posts in the United States this is the most important. * * *

Such is the formidable state and strength of this post, that it has received the appellation of the American Gibraltar, and when properly guarded may bid defiance to an army of 20,000 men. * * * It commands the whole extent of country on the Hudson from New York to Canada and secures a communication between the Eastern and Southern States.—*Thacher's Military Journal, September 26, 1780.*

[a] The writer has had the advantage of the use of the exhaustive card bibliography of West Point, which has been prepared by the Librarian of the U. S. Military Academy.

INFANTRY PRIVATE, 1810

LITTLE is known about West Point previous to the Revolution; doubtless there was little to record. The lands around the point of land from which West Point takes its name,[a] and to the north and west thereof, were originally granted by the British Crown to Capt. John Evans.[b] In 1723, the Crown having reassumed these lands, the larger portion was granted to Charles Congreve, and as the terms of his patent required settlement on the ground within three years, it is probable that the first buildings at West Point were erected about that time. In 1747 another portion of the old Evans patent was regranted to John Moore, who afterwards purchased Congreve's lands, and whose son, Stephen Moore, in 1790, sold both grants to the United States. The necessity for making this purchase was represented to Congress by Alexander Hamilton, when Secretary of the Treasury, and by Henry Knox when Secretary of War, the latter eventually negotiating the purchase for the Government.

Constitution Island was formerly known as Martelaar's or Martler's Rock, on account of a French family named Martelaire who were located on the island or in its vicinity about 1720.[c] During the Revolution the principal fortification on the island was called Fort Constitution, from which the island obtained its present name.

It is not possible to consider the revolutionary history of West Point without taking into account all the military works erected in and around the Highlands of which West Point

[a] The extreme rocky point projecting from "West Point" is called Gee's Point, from Captain Gee, of the sloop *Federal*, who brought stores to West Point about 1790–1810, and whose house was near Gee's Point.—*Calendar of New York Historical Manuscripts*

[b] On March 1, 1694, Capt. John Evans petitioned "for a grant of the land purchased by Governor Dongan of the Esopus Indians, on the west side of Hudsons River, from Murderers Creek back." Murderers Creek empties into the Hudson near Cornwall.—*Calendar of New York Historical Manuscripts.*

[c] Martelaar's Rock was sometimes called Martyrs Cliff. The site of the present village of Garrisons was formerly known as Mandeville's. The Point of land directly across from Gee's Point was known as Nelson's Point.—*Boynton's History of West Point.*

THE ROBINSON HOUSE.

proper was the citadel, for all were combined in one command, designated the "command of West Point and its dependencies."[a]

Until the American troops began to cut timber for military purposes and to crown the surrounding hills with forts and redoubts, West Point and the neighboring Highlands were little else than a wilderness of rugged hills and virgin forests, presenting about the same appearance as first greeted Henrik Hudson when, in 1609, he sailed up the river which now bears his name.[b] Although this tract of country could never lend itself kindly to the agriculturist, yet before the advent of the American soldier there were several houses standing at or near West Point, which were subsequently used for purposes very foreign to the peaceful intentions of their builders. Two of these houses became noted. One was "Moore's house"[c] at West Point, used by Washington as his headquarters during the whole, or a part, of the time he was stationed at West Point, from July 21, 1779, until November 28, 1779. The other was the "Robinson house,"[d] and was situated on the eastern shore of the Hudson, about 2 miles below West Point. It was used as a military hospital and afterwards as the headquarters of several successive general officers, among whom was Benedict Arnold, who was in this house when he was apprised of Andre's capture. It was from this house that Arnold made his escape. One of the surgeons who took possession of the "Robinson house" wrote in his diary on June 11, 1778:

> In the location of a country seat the judgment of Colonel Robinson is not much to be admired, unless he was guided altogether by a taste for romantic singularity and novelty. It is surrounded on two sides by

[a] On August 3, 1780, when Washington appointed Arnold to the command at West Point, he informed him that his command was to consist of "West Point and its dependencies, in which all are included, from Fishkill to Kings Ferry."

[b] Hudson anchored near West Point on September 14, 1609, probably the first time that any European saw this section.

[c] This house stood in Washington Valley and was located near the shore of the Hudson, a short distance from the northeast corner of the present cemetery. It was built by John Moore sometime prior to 1749, and presumably was somewhat pretentious for the time and place, as it was known as "Moore's Folly."—*See Baker's Itinerary of General Washington*

[d] The "Robinson house" was built about 1750 by Beverly Robinson, a man of note and wealth. He had been a personal friend of Washington until the Revolution separated them, when he went to New York and raised a regiment known as the "Loyal Americans," for service under the British. He assisted Arnold and André in their negotiations. At the close of the Revolution, Robinson went to England. This house was destroyed by fire March 17, 1892.

hideous mountains and dreary forests, not a house in view, and but one within a mile.[a]

A glance at the map and a consideration of the circumstances of the Revolution and of the methods of war at that time will enable the military reader to appreciate the value of the control of the Hudson River to each contestant during the struggle. The importance of this river had been seen by both the Americans and British in the French and Indian war. The Hudson flows almost due south for more than 200 miles; there is an easy portage from Lake George to the Hudson, and Lake George is connected with Lake Champlain, which in turn is connected with the great Canadian River—the Saint Lawrence. Thus the Eastern colonies could be separated from the other colonies by controlling this chain of navigable waters. Moreover, the Mohawk, a tributary of the Hudson, connects the last-named river with the region of the Great Lakes. In the days of the Revolution the possession of the Hudson was indispensable to any army which was to operate north from New York City or south from Lake Champlain. The British used both Manhattan Island and Canada as bases of operation, and if, in addition, they had securely held the Hudson River, it would have furnished the best possible line of communication by which troops and material could have been transported. If they had held the river by means of strong posts and armed patrolling vessels, the New England colonies would have been cut off from the middle and southern colonies; and this not only would have prevented military combinations by the sections so divided, but would have prohibited the interchange of commodities necessary to both sections. Even to-day a vast amount of commerce is annually borne by the Hudson, although parallel railway systems afford means of land transportation.

At the beginning of the war, although the American authorities, as well as the British, saw the importance of holding the Hudson, it seems strange that West Point was not occupied until the war had been in progress nearly three

[a] Dr. James Thacher served in the Revolution, first as surgeon to the First Virginia Regiment, and afterwards in the same capacity in the Sixteenth Massachusetts Regiment. He was stationed at West Point several times during the Revolution.—*Thacher's Military Journal.*

years. Situated in the heart of the Highlands, 50 miles from the river's mouth, this rocky point jutting boldly into the river receives the stream from the north after a straight course of 9 miles, veers it sharply eastward for a quarter of a mile, and then allows it to again flow south, which it does for several miles in a straight course. The reach to the southward can well be commanded by batteries across the river on Constitution Island; the reach to the northward by batteries on West Point. Between the island and the point the stream becomes narrower and swifter than it is at any other point in the vicinity, and sailing vessels from the south rounding West Point in the swift current necessarily lose their headway, and would strike with diminished force any obstruction which could be placed across the 500 yards intervening between West Point and Constitution Island; and such an obstruction could hold a vessel under the fire of batteries placed on the rocky bluffs on both sides of the river. Works at West Point, near the river's bank, could be protected by suitable forts and redoubts placed on the various heights in rear. The rugged nature of the Highlands and the absence of good roads would make it difficult for a hostile army to approach by land either West Point or Constitution Island. With the engineering and ordnance of revolutionary days, to properly hold and defend the Hudson where it passes through the Highlands, not only should West Point, Constitution Island, and the adjacent hills be fortified, but also outlying places, such as Fort Montgomery, Stony Point, Verplanck's Point, Anthony's Nose, and Pollopel's Island. All such fortified places should be made dependencies of West Point, which would be the strong citadel of the system and a depot for military supplies—in fact a secondary base of operation and a veritable mountain fastness. Such was the final view acted upon by the American authorities in 1778.

From the Revolutionary manuscripts it is not possible to compile a consecutive and detailed history of West Point during the struggle for independence. Much is lacking, but from the disjointed reports of that day, although at times contradictory, glimpses are afforded of the shifting war

scenes, by which something of the rôle of West Point in the Revolution may be understood and appreciated. This place became the most carefully fortified post possessed by the Americans during that war, containing at times the largest garrison and nearly all of the military stores. The troops labored on the fortifications and buildings from January, 1778, until the close of the war. More than $3,000,000 were expended upon the military works and at times the garrison numbered 3,000 men. These figures mean much when we consider the straitened condition of the struggling colonies. The public treasury was almost always empty. The Army, which was small, lacked confidence in itself; the toiling soldiers who built these works were at times ill-clad, ill-rationed, poorly sheltered, and their full pay is to this day unpaid. An American should reverence the crumbling ruins which remain at West Point as monuments to those whose patriotic labor and privations made this nation a possibility.

To West Point, at one time or another, came nearly every officer prominent in the annals of the war. Washington was frequently here,[a] and his subordinates came and went. Troops were continually arriving and departing; they assembled here from battlefields and recruiting districts to disappear again on expedition and foray. Men who had served around Boston, in the Quebec expedition, with Washington in the Jerseys, and against Burgoyne, were here camped with men who had seen service in the middle and southern colonies. Troops marched from West Point to maneuver against Clinton, to quell the mutineers in the Jerseys, to assist in the capture of Cornwallis's army at Yorktown, and, finally, to receive New York City from the evacuating

[a] Washington presumably first saw West Point in November, 1776, when he came up the river to inspect the works on Constitution Island.

"November 11 " [1776.]

"The commander in chief directed our General [Heath] to attend him in taking a view of Fort Montgomery and the other works up the river. Lord Sterling, Gens. James and George Clinton, General Mifflin, and others were of the company. They went as far up the river as Constitution Island, which is opposite to West Point, the latter of which was not then taken possession of; but the glance of the eye at it, without going on shore, evinced that this post was not to be neglected. There was a small work and a blockhouse on Constitution Island. Fort Montgomery was in considerable forwardness."—*Heath's Memoirs.*

Washington was subsequently at West Point a number of times. Exclusive of the period when his headquarters were here, there have been recorded about twenty visits which he paid to this post. His solicitude for the maintenance of this post during the Revolution is evinced in a number of his letters and orders and in the dispositions he made of his troops.

British. From their camp in the immediate vicinity of West Point Wayne's troops made their successful dash against Stony Point. Moreover, the most dramatic feature of the Revolution, the treason of Arnold and the execution of André, was centered around West Point.

On May 25, 1775, the Continental Congress sent to the congress of the province of New York the following:

Resolved, That a post be taken in the Highlands, on each side of the Hudson River, and batteries erected; and that experienced persons be immediately sent to examine said river in order to discover where it will be most advisable and proper to obstruct the navigation.

Upon this resolution the provincial congress on May 30, 1775, acted as follows:

Ordered, That Colonel Clinton and Mr. Tappan be a committee (and that they take to their assistance such persons as they shall think necessary) to go to the Highlands and view the banks of the Hudson River there; and report to this congress the most proper place for erecting one or more fortifications, and likewise an estimate of the expense of erecting the same.

This committee in its report, made June 13, suggested the erection of works where Fort Constitution (Constitution Island), Fort Montgomery, and Fort Clinton[a] were subsequently constructed. This committee also stated that it had been informed that the navigation of the river might be stopped by means of booms chained together. On August 18 the provincial congress directed that the fortifications in the Highlands formerly ordered by the Continental Congress be erected immediately, according to the suggestion of the committee. No time was lost in carrying the resolutions of the continental and provincial congresses into effect.

On August 29, 1775, the fortifications in the Highlands were begun on Constitution Island, under the direction of Col. Bernard Romans as engineer in charge of works, his party consisting of 24 men. His scheme of fortifications embraced not only the works to be erected on Constitution Island, but also two works on the ridge directly east of what

[a] This Fort Clinton was located immediately south of Fort Montgomery and was built in connection with that work. It was situated between 5 and 6 miles south of West Point and should not be confused with the other Fort Clinton, the ruins of which are still visible on the northeast corner of the West Point plateau. This last-mentioned fort was called Fort Arnold until the treason of the general of that name.

is now Garrison (which works when completed were designated North Redoubt and South Redoubt), a work upon Sugar Loaf Mountain, and Fort Montgomery, with the adjacent work known as Fort Clinton. Colonel Romans proposed to expend on the fortifications on Constitution Island nearly £5,000 in blockhouses, barracks, storehouses, a magazine, etc., five batteries mounting 61 guns and 20 swivels, and a fort with a curtain about 200 feet in length. About this time the provincial congress passed a resolution of inquiry as to the advisability of constructing a work on the West Point side of the river at "Moore's house," but this was subsequently deemed inadvisable.

On November 3 the provincial congress ordered three companies to take station on Constitution Island, and on November 8 the Continental Congress resolved that an officer with the rank of colonel take command of the fortifications in the Highlands. In compliance with this resolution, Col. Isaac Nicoll, on January 16, 1776, was directed by the committee of safety to take command of these fortifications. On November 8, 1775, the provincial congress appointed a committee, composed of Robert R. Livingston, Robert Treat Paine, and J. Langdon, to examine and report upon the "fortifications upon Hudson's River." This committee, on November 23, reported to John Hancock, President of Congress, and among other things stated:

> We must own that we found the fort in a less defensible situation than we had reason to expect. It does not command the reach to the southward,[a] nor can it injure a vessel turning the West Point; and after she has got around, a small breeze, or even the tide, will enable a ship to pass the curtain in a few minutes. The fortress is unfortunately commanded by all the grounds about it, but the most obvious defect is that the grounds on the West Point are higher than the fortress, behind which an enemy might land without the least danger. In order to render the position impassible it seems necessary that this place should be occupied and batteries thrown up on the shore opposite, where they may be erected with little expense, as the earth is said to be pretty free from stone, etc.[b]

[a] The sketch of Romans's plan shows that he had designed a work to be placed on or near Gravel Hill which would command the reach.

[b] On September 14, 1775, Colonel Romans, in a communication on the intended fortifications in the Highlands, to the New York committee of safety, submitted a drawing on which he locates a work at Gee's Point. This work was to consist, Colonel Romans explained, of a blockhouse mounting four 4-pounders and a battery mounting three 6-pounders. This drawing gives the direction of fire and the range of the ordnance in some of the proposed works.

At first the fortifying of Constitution Island does not appear to have progressed very favorably. The commissioners who had been appointed by the provincial congress "to manage the erecting and finishing the fortifications in the Highlands" differed with Colonel Romans on some essential points relative to authority, plans, expenses, etc. Colonel Romans was succeeded by Colonel Smith, an engineer who had been ordered to Constitution Island by General Lee. On February 29 the commissioners reported that Colonel Smith had "much to their satisfaction" laid out a barbette battery on Gravel Hill[a] which would mount 18 guns commanding the reach to the southward, and which had been authorized by the Continental Congress on February 15, 1776.

Early in 1776, the Continental Congress appointed Benjamin Franklin, Samuel Clure, and Charles Carroll as commissioners to visit Canada in the interests of the colonies. While en route to their destination they arrived "off Constitution fort April 5," and going ashore, "from curiosity," they reported the state of the fort as follows:

> The garrison consisted of three companies of minutemen, whose combined strength was 124 men. On the south bastion thirteen 6-pounders and one 9-pounder were mounted; the east bastion mounted seven 9-pounders and one 6-pounder. The blockhouse contained eight double fortified 4-pounder guns, mounted; the fortifications ordered by Congress on the 15th of February, and laid out by Engineer Smith, remain wholly neglected.[b]

On May 21, 1776, Washington wrote to General Israel Putnam:

> I have great reason to think that the fortifications in the Highlands are in a bad situation, and the garrison, on account of arms, worse. I would have you send Brigadier Lord Stirling,[c] with Colonel Putnam and Colonel Knox (if he can be spared), to see and report such alterations as may be judged necessary for putting them into a fit and proper position for defense.

In compliance with this order a board was appointed, consisting of Brig. Gen. Lord Stirling, Col. Rufus Putnam and Captain Sargeant (in place of Colonel Knox). They left the

a The southwestern eminence of Constitution Island, near the railroad.

b Boynton's History of West Point.

c William Alexander, a general officer in the American service, who claimed to be the rightful heir to the title and estates of the earldom of Stirling in Scotland. He was called Lord Stirling by courtesy.

city of New York on May 26, and a few days thereafter Washington received the following report from Stirling:

JUNE 1, 1776.

SIR: Agreeable to your request, I left New York on Sunday last, in order to view the fortifications on the Hudson's River in the Highlands. I took with me Colonel (Rufus) Putnam, chief engineer, and Captain Sargeant, of the Artillery. The winds were so adverse that we did not reach Fort Montgomery until Wednesday evening, but, with the help of our boat, we employed our time in visiting several other parts of the river that appeared proper for fortifying. At the mouth, or south end of the Highlands, about 4 miles below Fort Montgomery, there is a post (Stoney Point), which to me appears well worth possessing on many accounts. Should the enemy be in possession of it, we should be cut off from our best communication with the whole country below the Highlands, eastward as well as westward. There is a very remarkable spot of ground (Verplanck's Point), easily fortified, which commands the passage of the river, as well as either of the other posts; it also commands the mouth and landing of Peek's Kill, from which there is an excellent road into Connecticut, which is only 20 miles off; on the opposite side is an excellent road into New Jersey and Pennsylvania. In the passage from this place to Fort Montgomery is a large island, which would be very useful to the enemy in their approaches to that place.

Fort Montgomery is situated on the west bank of the river, which is there about half a mile broad, and the bank 100 feet high; on the opposite shore is a point of land called Anthony's Nose, which is many hundred feet high, very steep, and inaccessible to anything but goats or men very expert in climbing. A body of riflemen placed here would be of very great use in annoying an enemy, as the decks of every vessel that passes must lie open to them.

The works begun and designed at Fort Montgomery are open lines, and all lie on the north side of a small creek called Pooplopens Kill, on the south side of which is a point of land which projects more into the river, commands all the principal works and is within two and three hundred yards of them. On the top of this point is a level spot of ground of near an acre, commanded by nothing but the high, inaccessible mountains, at about twelve hundred yards' distance. This spot, I think, should by all means be fortified, as well as for the annoyance of the enemy in their approach up the river as for the protection of the works at Fort Montgomery. Indeed, this appears to me the most proper place I have seen on the river to be made the grand post, and in my opinion should be a regular strong work, capable of resisting every kind of attack and of containing a grand magazine of all kinds of warlike stores. The whole would then command the passage of the river with so formidable a cross fire as would deter any attempt to approach with

shipping. Those works built are all faced with fascines and filled in with strong, good loam, but, as they are liable to take fire, the commissioners who have the care and direction of the works propose to rough-cast the faces of the embrasures with a strong mortar made of quicklime and sharp sand, of which there is plenty at hand. I advised them to try the experiment on part of the work as soon as possible. As those open lines are entirely defenseless on the land side, it will be very proper to erect a small redoubt on the hill, in the rear of them.

Fort Constitution is about 6 miles above Fort Montgomery, on an island near the east side of the river, and near the north end of the Highlands, which on the west and south sides is bounded by the river, and on the north and east sides by low marsh and small creeks running through it. The works here consist of four open lines or batteries, fronting the river; the two easternmost command the approach up the river very well; the next, or middle line, commands the approach from West Point upward; the westernmost battery is a straight line, constructed by Mr. Romans, at a very great expense; it has 15 embrasures, which face the river at a right angle, and can only annoy a ship in going past; the embrasures are within 12 feet of each other; the merlons on the outside are but about 2 feet in the face, and about 7 feet deep, made of square timber covered with plank, and look very neat; he also built a log house or tower on the highest cliff, near the water, mounted with 8 cannon (4-pounders) pointed out of the garret windows, and look very picturesque. Upon the whole, Mr. Romans has displayed his genius at a very great expense, and to very little public advantage. The works, in the present open condition and scattered situation, are defenseless; nor is there one good place on the island on which a redoubt may be erected that will command the whole; however, I have marked in the plan (No. 3) those heights which are most commanding; yet every work on the island is commanded by the hill on the West Point, on the opposite side of the river, within 500 yards, where there is a level piece of land of near 50 acres in extent. A redoubt on this West Point is absolutely necessary, not only for the preservation of Fort Constitution, but for its own importance on many accounts. One also is necessary at the west end of the island, to command the approach that way, and to prevent a landing at the north side of the island. An easy communication by land, as well as by water, may be made with Fort Montgomery from the West Point.

The garrison of Fort Constitution consists of two companies of Col. James Clinton's regiment and Captain Wisner's company of minutemen, in all about 160, rank and file. The garrison at Fort Montgomery consists of three companies of the same regiment, amounting to about 200 men, rank and file. The field officer of the regiment is Lieutenant-Colonel Livingston; but the command of the whole of both garrisons is still in the hands of Colonel Nicoll, who, it seems, last fall raised a

regiment of minutemen for the purpose of garrisoning Fort Constitution, which regiment is all dismissed except Captain Wisner's company of about 40 privates. Lieutenant-Colonel Livingston has very prudently avoided any dispute with Colonel Nicoll about the command, rather referring the matter to Your Excellency's determination. The whole of the troops at both these posts are miserably armed, as will appear by the return (No. 4). Lieutenant-Colonel Livingston informs me he has lately received about 40 firelocks, all in very bad order, from the committees of Dutchess County, and expects several hundred more in a few days in the same condition. I have therefore directed the blacksmith's shop at Fort Constitution to be enlarged, so that it will at the same time serve for an armory. A blacksmith's shop and armory of the like kind I have directed at Fort Montgomery, and the artificers in those branches in Clinton's regiment to be employed in them.

* * * * * * *

Considering the different directions all these matters are under, I have avoided giving any determinate orders about them, but it is highly necessary that explicit orders should soon issue.

I am Your Excellency's most humble servant,

STIRLING.

To His Excellency GENERAL WASHINGTON.

In the meantime the work on Fort Montgomery and the neighboring Fort Clinton (which had been begun May 14, 1776), was progressing under the personal supervision of Col. James Clinton, at that time commanding in the Highlands.

It was thought that land fortifications alone would not be sufficient, and that they should be supplemented by obstructions placed in the river itself.[a] Therefore, on July 16, 1776, the provincial convention[b] passed the following resolution:

Resolved, unanimously, That a secret committee be appointed to devise and to carry into execution such measures as to them shall appear most effectual for obstructing the channel of the Hudson River, or annoying the enemy's ships in their passage up said river; and that this convention pledge themselves for defraying the charges incident thereto.

Resolved, That Mr. Jay, Mr. Robert Yates, Maj. C. Tappan, Mr. Robert R. Livingston, and Mr. Paulding be said committee.

There were four points at which it was sought to obstruct the navigation of the river by means, either singly or combined, of fire-ships, booms and chains, and chevaux de frise. The first point was at Fort Washington, the second at Fort Montgomery, the third at Pollopel's

[a] A suggestion to that effect was made on June 13, 1775, by the committee which the provincial congress sent to the Highlands to report upon the proper places for fortifications.

[b] On July 10, 1776, the title provincial congress was changed to provincial convention. The body so named was the forerunner of the State legislature.

Island, and the fourth at West Point. The fire ships and obstructions at Fort Washington were constructed in the summer of 1776; the obstructions at Fort Montgomery and Pollopel's Island in the autun of 1776 and springs of 1777 and 1778, and those at West Point in 1778.[a]

The British ministry's plan of campaign in New York for 1777 was for a combined movement to seize the Hudson and to reap the obvious benefits. The details of this plan were for Burgoyne to march from Canada to Albany, there to meet St. Leger, who was to descend the Mohawk, and Howe, who was to ascend the Hudson. The first two officers received their orders and commenced operations which resulted in the return of St. Leger to Canada and the surrender of Burgoyne, at Saratoga, October 17, 1777. Washington surmised the intentions of the British ministry, and on the 1st of July, from headquarters at Middlebrook, he wrote Putnam:

* * * It appears almost certain to me that General Howe and General Burgoyne design, if possible, to unite their attacks and form a junction of their two armies * * * and I am persuaded, if General Howe is going up the river, he will make a rapid and vigorous push to gain the highland passes.

Howe did not receive his order until it was too late for him to comply with it; in fact, when his order arrived from England, Howe had left New York City and was in Philadelphia, with Washington in his vicinity. Howe's successor in New York, Gen. Sir Henry Clinton, organized an expedition to attempt to carry out the plan of campaign, or at least to capture the works in the Highlands, which would open the Hudson, and, if not too late, tend to the relief of Burgoyne. At that time the works in the Highlands consisted of those on Constitution Island and in the neighborhood, on the east side of the Hudson, Fort Montgomery and the adjacent Fort Clinton, those at Verplanck's Point, Peekskill, and around the base of Anthony's Nose. At Fort Montgomery there was a boom and chain across the Hudson. West Point was neither garrisoned nor fortified.

The American troops in the Highlands were under the command of Gen. Israel Putnam. Sir Henry Clinton's expedition, consisting of 3,000 or 4,000 men, transported on naval

[a] Ruttenber's Obstructions to the Navigation of Hudson's River, p. 15.

vessels, was very skillfully conducted. His men were embarked under the ruse of a southern expedition, but when the wind and tide served the flotilla turned northward up the Hudson. A feint, which was successful in misleading Putnam, was made by landing some troops at Verplanck's Point, but the main body was landed at Stony Point on October 6 and began operations against Forts Montgomery and Clinton. These two forts were defended by about 600 American militia under Governor George Clinton and his brother, Gen. James Clinton. The hastily assembled militia could not hold out against the British assault assisted by naval vessels. Governor George Clinton escaped to the eastern bank of the river, while Gen. James Clinton led a party of fugitives to New Windsor,[a] retreating through what is now the West Point Reservation. A Continental frigate, the *Montgomery*, a 10-gun sloop, and two row galleys which had been stationed above the chain and boom, were burned by the Americans to prevent capture. The frigate *Congress*, which was higher up the river, was run on the flats opposite to West Point and was also burned. The garrison at Fort Constitution was little more than a mere guard, and consequently Constitution Island was easily occupied by the British on October 7. On October 8 General Tryon landed on the east side of the river and completed the demolition of the "fortifications in the Highlands."

A column under General Vaughn advanced up the Hudson as far as Kingston. A party of British commenced the rebuilding of Fort Clinton (near Fort Montgomery), under the name of Fort Vaughn. Another party made a raid upon the Continental Village[b] and destroyed a large amount of stores collected there by the Americans, and also some barracks which they had built. It is estimated that the stores destroyed and works demolished by Sir Henry Clinton on his expedition to the Highlands had cost about a quarter of a million dollars, which was a considerable sum to the Americans at that time. But Clinton's expedition was too late to help Burgoyne; learning of the latter's surrender, Clinton

[a] About 6 miles north of West Point.

[b] The Continental Village, which was an American rendezvous and depot, was situated four or five miles southeast of what is now Garrisons.

returned to New York City, his troops having been in the vicinity of West Point for about twenty days. It is more than probable that the topographical features of West Point had attracted the attention of some military men in Sir Henry Clinton's command. Some years afterwards, when writing relative to the Arnold affair, Sir Henry stated:

"* * * I had myself been over every part of the ground on which the forts (at West Point) stood, and had of course made myself perfectly acquainted with everything necessary for facilitating an attack of them." Some of Sir Henry's sailors also visited West Point about this time.[a]

The ease with which Sir Henry Clinton had advanced through the Highlands attracted the attention of the American authorities to the necessity of additional fortifications and obstructions in the river to prevent a recurrence of the unfortunate affair. Washington especially was awake to this necessity. The following is his letter to Gen. Israel Putnam on the subject:

HEAD-QUARTERS, *2d December, 1777.*

DEAR SIR: The importance of the Hudson River in the present contest, and the necessity of defending it, are subjects which have been so frequently and fully discussed, and are so well understood, that it is unnecessary to enlarge upon them. These facts at once appear, when it is considered that it runs through a whole State; that it is the only passage by which the enemy from New York, or any part of our coast, can ever hope to co-operate with an army from Canada; that the possession of it is indispensably essential to preserve the communication between the Eastern, Middle, and Southern States; and further, that upon its security, in a great measure, depend our chief supplies of flour for the subsistence of such forces as we may have occasion for, in the course of the war, either in the Eastern or Northern departments, or in the country lying high up on the west side of it. These facts are familiar to all; they are familiar to you.

I therefore request you, in the most urgent terms, to turn your most serious and active attention to this infinitely important object. Seize the present opportunity and employ your whole force and all the means in your power for erecting and completing, as far as it shall be possible,

[a] In 1778 the farm at West Point was managed by Charles Moore, a son of John Moore. On February 10, 1778, Charles Moore wrote to Governor Clinton, asking permission to occupy Beverly Robinson's house and farm, in view of the fact that his own farm at West Point was wanted by our army and his house had been requisitioned for headquarters. Moore goes on to state, alluding to Sir Henry Clinton's expedition to the Highlands in 1777: "I suffered greatly last Fall by having almost all my Stock taken from me by ye Sailors belonging to ye enemy, and this affair will, I fear, entirely ruin me."

such works and obstructions as may be necessary to defend and secure the river against any future attempts of the enemy. You will consult Governor Clinton, General Parsons, and the French engineer, Lieutenant-Colonel Radière, upon the occasion. By gaining the passage, you know the enemy have already laid waste and destroyed all the houses, mills, and towns accessible to them. Unless proper measures are taken to prevent them, they will renew their ravages in the spring, or as soon as the season will admit, and perhaps Albany, the only town in the State of any importance remaining in our hands, may undergo a like fate, and a general havoc and devastation take place.

To prevent these evils, therefore, I shall expect that you will exert every nerve and employ your whole force in future, while and whenever it is practicable, in constructing and forwarding the proper works and means of defense. The troops must not be kept out on command and acting in detachments to cover the country below, which is a consideration infinitely less important and interesting.

I am, dear sir, etc.

At the same time Washington wrote a letter to Governor Clinton about this matter. The latter in his reply recommended that " * * * a strong fortress should be erected at West Point opposite to Fort Constitution."

Early in January, 1778, General Putnam having requested the provincial convention of New York to appoint a committee to confer with him relative to the necessary works to be constructed in the Highlands, a committee for this purpose consisting of five members was appointed on January 8. On January 9 this committee reported that they had conferred with General Putnam, Gen. James Clinton and Lieutenant-Colonel de la Radière about the necessary works for the defense of the passes of the Highlands, but, that disagreements having arisen relative to the location of the works, the committee recommended the appointment of commissioners to view the passes of the Hudson, with the generals and other officers, and advise in the selection of the places where such fortifications should be erected. Commissioners having been appointed they proceeded to West Point and having spent three days in examining the terrain there, and in the neighborhood, they reported as follows:

WEDNESDAY, *January 14, 1778.*

Your committee, who were sent to ascertain the place for fixing a chain and erecting fortifications for obstructing the navigation of the

Hudson River, beg leave to report that they have carefully viewed the ground on which Fort Clinton[a] lately stood, and its environs, and find that the ground is so intersected with long, deep hollows that the enemy might approach, without any annoyance from the garrison within the fort, to within a few yards of the walls unless a redoubt should be raised to clear the hollows next the fort, which must be built at such distance from the fort that it could not be supported from thence in case of an assault, so that the enemy might make themselves masters of the redoubt the first dark night after their landing, which would be a good work, ready to their hand, for annoying the fort and facilitating their operations against it, and, together with the eminence and broken grounds within a short distance of the fort, would render it impossible for the garrison to resist a general assault for many hours together. Another objection that appeared to the committee was the want of earth on the spot, which would reduce the engineer to the necessity of erecting his works entirely of timber, which must be brought to Pooploop's Kill in rafts, and from thence drawn up a steep and difficult road to the top of the hill. The rafts can not be made till the water is warm enough for men to work in it, by which it is probable that a fort can not be erected before the ships of the enemy will come up the river. Besides, at this place the chain must be laid across the river, so that it will receive the whole force of the ships, coming with all the strength of tide and wind on a line of three or four miles. Add to these, if the enemy should be able to possess themselves of the passes in the mountains through which they marched to the attacks of Forts Montgomery and Clinton, it would be extremely difficult, if not impossible, for the militia of the country to raise the siege.

Upon viewing the country at and about West Point, the committee found that there were several places at which the enemy might land and proceed immediately to some high grounds that would command a fort erected at West Point, at the distance of six or seven hundred yards, from which they might carry on their approaches through a light gravelly soil, so that it would be impossible for the fort to stand a long siege. But to balance this disadvantage in this place, there is plenty of earth. The timber may be brought to the spot by good roads from the high grounds at the distance of one to three miles. Three hundred feet less of chain will be requisite at this place than at Fort Clinton. It will be laid across in a place where vessels going up the river most usually lose their headway. Water batteries may be built on both sides of the river for protecting the chain and annoying the ships coming up the river, which will be completely commanded from the walls of the fort. There are so many passes across the mountains to this place that it will be almost impossible for the enemy to prevent the militia from coming to the relief of the garrison.

[a] Near Fort Montgomery.

From these considerations the committee are led to conclude that the most proper place to obstruct the navigation of the river is at West Point, but are at the same time fully convinced that no obstructions on the banks of the river can effectually secure the country unless a body of light troops, to consist of at least two thousand effective men, be constantly stationed in the mountains, while the navigation of the river is practicable, to obstruct the enemy in their approach by land.

JNO. SLOSS HOBART.
HENRY WISNER.
JOHN HATHORN.
ZEPH. PLATT.

POUGHKEEPSIE, *January 14, 1778.*

On January 20, 1778, in the "Valley Forge winter," General Parsons's brigade crossed to West Point and began the building of the fortifications of West Point, which has remained an American garrison post from that day to this. The weather was severe, the ground was covered with snow, proper implements and material were lacking; but despite these facts the works were commenced according to the plans of de la Radière, who worked under the supervision of Putnam. A large work was laid out on the northeast corner of the West Point plateau, where the ruins of Fort Clinton now are, and the construction of the water batteries was begun.

An officer of Parsons's brigade has left the following picture of those first military days at West Point:

We had but just made ourselves comfortable when our regiment was ordered to remove on and occupy West Point. Government viewing it absolutely necessary to have a strong post established on the river Hudson, to serve as a barrier against the enemy's cutting off communication between the Northern and Southern States. This was in the month of February, 1778. I, being at the time senior officer of the regiment present, of course led on the regiment, crossing the river on the ice; the winter proving severe the ice had formed very firm. To the young gentlemen of the military school it may be interesting to be informed of the time and circumstances of its first occupancy as a military post. On the loss of Fort Montgomery, in October, 1777, West Point was selected to be fortified. Coming on to the small plain surrounded by high mountains, we found it covered with a growth of yellow pines 10 or 15 feet high; no house or improvement on it; the snow waist high. We fell to lopping down the tops of the shrub pines and treading down the snow, spread our blankets, and lodged in that condition the first and second

nights. Had we not been hardened by two years of previous service, we should have thought it difficult to endure this. The pines not being large enough for logs for huts, we were under the necessity of making temporary covers of those scanty materials until we could draw logs from the edge of the mountain and procure the luxury of log huts; this we effected but slowly, the winter continuing severe. In two or three weeks we had erected our huts, and a French engineer by the name of La Radière arriving, the snow being removed for the site of the present main fort, the works were traced out, and parties sent out every fair day up the river to cut timber and drag it on to the ice, to be ready to float it down to the Point when the river should be clear of ice. This service was rather fatiguing to the men, but as they had a cabin to lodge in at night and provisions served out with tolerable regularity, they thought themselves comparatively happy, though their work was incessant.

Our line of huts was built just below the summit of the upper bank, that they might be partially sheltered from the northwest wind. As spring approached we set ourselves to collect the rough stone which we found on the surface of the ground to use in erecting the fortification. Two other regiments coming on, and Brigadier-General Parsons arriving, the brigade was formed and a regular routine of duty was established. The duty of brigade major devolving on me, those of us of the staff had a tolerable-sized log hut erected near the center of the plain of the Point. La Radière, the engineer, was very assiduous in planning and laying out the fort, and as soon as the frost was out we broke ground under his direction. He was a young gentleman, educated at a military school in France, and, like many other ambitious men of his nation, was attracted by the celebrity our cause had gained by the capture of the army under Burgoyne to come and act a part with us. His delicate frame was not equal to sustaining those hardships which were so familiar to the soldiery of the Revolutionary army. He caught a severe cold, which ended in consumption, of which he died about midsummer following.

On his leaving the Point he was succeeded by the well-known Thaddeus Kosciusko, a Pole, as engineer. I quartered a considerable time with him in the same log hut, and soon discovered in him an elevation of mind which gave fair promise of those high achievements to which he attained. His manners were soft and conciliating, and, at the same time, elevated. I used to take much pleasure in accompanying him with his theodolite, measuring the heights of the surrounding mountains. He was very ready in mathematics. Our family now consisted of Brigadier-General Parsons, Doctor (afterwards President) Dwight, Kosciusko, and myself, with the domestics. As spring advanced orders and injunctions were communicated to us almost every day to press forward the works. We soon began to erect Fort Putnam far up the mountain. On beginning the work we found plenty of

rattlesnakes, which, of course, we dispatched as soon as discovered. We were in daily expectation of a visit from the enemy, but they did not see fit to interrupt us.

When the weather had become mild and pleasant in April I went one day with Doctor Dwight down to view the ruins of Fort Montgomery, distant about 8 or 10 miles. There was a pond just north of the fort, where we found the British had thrown in the bodies of their own and our men who fell in the assault of the fort. The water had receded, leaving a number of the bodies entirely out of the water, while others lay covered at different depths. I saw many fine sets of teeth, bare and skeleton-like. Mournful and impressive reflections arose in my mind. There lie the youth who stood in the hour of their country's trial; they fought and fell to purchase the independence of their country; and there they lie without burial. I thought, too, of the vicissitudes to which a soldier is subject. Had the fort held out a little longer, I very probably might have lain among them.[a]

General Parsons, in writing to Colonel Wadsworth, thus describes his impressions of West Point at that time:

CAMP AT WEST POINT, *Feb. 22, 1778.*

DEAR SIR: Your Favor of the 9th inst. I rec'd by Col. Hughes, and thank you for the Care you have taken of me. You ask me where I can be found? This is a puzzling Question; the Camp is at a Place on Hudson's River cal'd West Point, opposite where Fort Constitution once stood. The situation is past Description, surrounded with almost inaccessible Mountains, and craggy Rocks which overtop the highest Hills, at present covered with Piles of Snow, the River in our Front affords a beautiful Prospect on our Right and Left to New Windsor on one Hand and to Fort Montgomery on ye other with some little Islands interspers'd. The surrounding Prospect affords as great Variety of Hills, Mountains, Rocks, which seem to shut up every Avenue to us, and of Swamps, Meadows, deep Vallies which obstruct the Passage of the Traveller and of small beautiful Plains in a good Degree of Cultivation intermixed, as almost any Place I have seen; to a contemplative Mind which delights in a lonely Retreat from the World to view and admire the stupendous and magnificent Works of Nature, 'tis as beautiful as Sharon, but affords to a Man who loves the Society of the World a prospect nearly allied to the Shades of Death; here I am to be found at present in what Situation of Mind you will easily imagine. * * * News arrives here by Accident only. * * *

Steps were at once taken to control the navigation of the river by placing an obstruction between West Point and Constitution Island. On February 2 General Putnam sent

[a] Narrative of Samuel Richards, printed in the United Service Magazine for October, 1843.

Deputy Quartermaster-General Hughes to visit the Stirling Iron Works," owned by Noble, Townsend & Co., and the following contract was entered into:

Articles of agreement between Noble, Townsend & Company, proprietors of the Stirling Iron Works, in the State of New York, of the one part, and Hugh Hughes, deputy quartermaster-general to the Army of the United States, of the other part, witnesseth:

That the said Noble, Townsend & Company jointly and severally engage to have made and ready to be delivered at their works to the said Hugh Hughes, deputy quartermaster-general, or to the deputy quartermaster-general of the middle department for the time being, on or before the 1st day of April next ensuing the date hereof, or as much sooner as circumstances will admit, an iron chain of the following dimensions and quality; that is, in length 500 yards, each link about 2 feet long, to be made of the best Stirling iron 2¼ inches square, or as near thereto as possible, with a swivel to every hundred feet and a clevis to every thousand feet, in the same manner as those of the former chain.

The said Noble, Townsend & Company also engage to have made and ready to be delivered at least 12 tons of anchors of the aforesaid iron, and of such size as the said Hugh Hughes or his successors in office shall direct, in writing, as soon as the completion of the chain will admit.

In consideration of which the said Hugh Hughes, in behalf of the United States, agrees to pay to the said Noble, Townsend & Company, or their order, at the rate of £440 for every ton weight of chain and anchors delivered as before mentioned, unless the general regulations on trade, provisions, etc., which are now supposed to be framed by deputies from the United States, shall be published and take effect before the expiration of four months from the date of this; in which case the price is to be only £400 per ton for the said chain and anchors. The payment, if demanded, to be made in such proportion as the work shall be ready to be delivered, which shall be determined in ten days after requisition made by a number of competent judges, not less than three nor more than five, unconcerned with the proprietors, or the works, and if condemned, to be completed at the expense of the said company,

"The Stirling Iron Works are still in operation [1848]. They are situated at Stirlingtown N. Y., which is about 25 miles southwest from West Point. Remains of the Revolutionary furnace are still standing.

Lossing, in his Pictorial Field Book of the Revolution, in a note on page 706, Volume I, states in "Documentary evidence" as follows, which differs somewhat from the above account of the manner of obtaining the work done: "Col. Timothy Pickering (Quartermaster-General), accompanied by Captain Machin, arrived at the house of Mr. Townsend late on a Saturday night, in March of that year, to encourage him to make the chain. Townsend readily agreed to construct it, and in a violent snowstorm, amid the darkness of the night, the parties set out for the Stirling Iron Works. At daylight on Sunday morning the forges were in operation; New England teamsters carried the links as fast as they were finished to West Point, a distance of about 25 miles; and in a space of six weeks the whole chain was completed."

who are also to repair, as aforesaid, all failures of their work, whenever happening, whether at the works or river, or in extending it across.

The said Hugh Hughes also engages to procure of the governor of this State for the said Noble, Townsend & Company an exemption for nine months from the date hereof, from military duty, for 60 artificers that are steadily employed at the said chain and anchors till completed. Agreeable to the said exemption, the said company complying with the terms thereof. Providing also that the said company give the said Hugh Hughes, or his successors in office, the refusal, by letter, of all the bar iron, anchors, etc., made at the said works in the said term of nine months, at the current price, unless what is necessary to exchange for clothing and other articles for the use of the works.

It is also agreed by the said parties that if the teams of the said company shall transport the said chain or anchors or any part thereof to any assigned post, they shall receive for such services the same pay as shall be given by the United States for the like; the teams of the company being exempted from impress by any of the Quartermaster-General's deputies during the space of nine months.

Lastly, the said company engages to use their utmost endeavors to keep seven fires at forging and ten at welding, if assisted with such hands as are necessary and can be spared from the army; in case of their not being able to procure others, the said company making deduction for their labor.

In witness whereof, the parties have interchangeably subscribed their names this 2d day of February, 1778, and in the second year of American independence.

PETER TOWNSEND,
In behalf of Noble & Company.
HUGH HUGHES,
In behalf of United States.

In presence of—
P. TILLINGHAST.

Governor Clinton, who was greatly interested in the obstruction of the navigation of the Hudson, directed Captain Machin, who had been engaged in the obstructions at Pollopel's Island, to take charge of placing the chain at West Point. The forges used by Captain Machin were at New Windsor, and there the links of the chain were welded together and fastened to the logs which were to bear the chain in the stream. The chain[a] was stretched across the river on April 30, 1778.

[a] It has been stated by Ruttenber (Obstructions to the Navigation of Hudson's River), and by Boynton (History of West Point), that in addition to the great chain across the river at West Point there was a boom, consisting of a system of parallel logs 18 feet in length connected with each

The chain was taken up each winter on account of its liability to injury, arising from the movements of the heavy floes of ice which form each year in the Hudson. The following references to the chain are found in Heath's Memoirs:

November 14, 1780. The great chain, which was laid across the Hudson at West Point, was taken up for the winter. It was done under the direction of Colonel Govion, Captain Buchanan, and Captain Nevers (Niven), with a strong detachment of the garrison, and with skill and dexterity. This chain was as long as the width of the river between West Point and Constitution Island, where it was fixed to great blocks on each side, and under the fire of batteries on both sides of the river.[a] The links of this chain were probably 12 inches wide, and 18 inches long; the iron about 2 inches square. This heavy chain was buoyed up by very large logs, of perhaps 16 or more feet long, a little pointed at the ends, to lessen their opposition to the force of the water on flood and ebb.

The logs were placed at short distances from each other, the chain carried over them, and made fast to each by staples, to prevent their shifting; and there were a number of anchors dropped at distances with cables made fast to the chain, to give it a greater stability. The short bend of the river at this place was much in favor of the chain's proving effectual; for a vessel coming up the river with the fairest wind and strongest way must lose them on changing her course to turn the Point; and before she could get under any considerable way again, even if the wind was fair, she would be on the chain, and at the same time under a heavy shower of shot and shell.

April 10, 1781.—The great chain was hauled from off the beach near the Red House at West Point, and towed down to the blocks, in order to its being laid across the river. About 280 men were ordered on this duty.

April 11.—The chain was properly fixed with great dexterity, and fortunately without any accident.

other by a chain at each end, which was placed in front of the chain. A bill was submitted for materials furnished for this boom, and in 1855 two logs chained together, which might have formed part of such an obstruction, were found in the Hudson River near West Point. However, neither Heath nor Thacher, who describe the chain more or less at length, say anything about the boom, nor has the writer been able to find any indication of it on maps of the Hudson at West Point, made during the Revolution, although the chain is represented thereon. [Kosciuszko writes on December 28, 1778, that the chain is safe and can easily be taken up when the cold abates; and that the boom lies where it was and will be taken up. This letter, a copy of which is in the McDougall MSS., owned by the Library of the U. S. Military Academy, proves at least that the chain and the boom were not identical.—EDITOR.]

[a] "Chain Battery walk" is so called on account of the water battery on the West Point shore which flanked the chain. This walk, as it passes in rear of the second small cove west of Gee's Point, has as a revetment a stone wall a few feet in height, which wall is possibly the remains of the original chain battery which stood in about this place, and directly in front of which the West Point end of the chain was fastened. On Constitution Island the other end of the chain was fastened near where at present there is a small boathouse and landing place. The distance between these points is about 500 yards.

The main work of fortifying West Point did not progress as rapidly as did the obstructing of the river. On February 18, 1778, General Parsons reported—

that almost every obstacle within the circle of possibility has happened to retard their progress. Preparations for completing them in April are now in a state of forwardness, unless something unforeseen as yet should prevent.

Again, from the "Camp at West Point, March 7, 1778," General Parsons communicated to Washington the perplexities arising from the acts of Congress relative to the direction of the works, and declared:

I most ardently wish to aid Governor Clinton, or any other gentleman appointed to superintend the work. At present no person has the direction. I have kept the troops at work because I found them here when I took the command. The weather has been such, since the 15th of February, as has greatly retarded the works; about seven days of the time has been such that we could do nothing. Lieutenant-Colonel Radière, finding it impossible to complete the fort and other defenses intended at this point in such a manner as to render them effectual early in the spring, and not choosing to hazard his reputation on works erected on a different scale, calculated for a short duration only, has desired to wait on Your Excellency and Congress, which I have granted him.

On the 16th of March General Parsons reported:

If the chain is completed, we shall be ready to stretch it over the river next week. I hope to have two sides and one bastion of the fort in some state of defense in about a fortnight; the other sides need very little to secure them. We have the works going on as fast as could be expected from our small number of men and total want of money and materials provided. I have several times advanced my last shilling toward purchasing materials etc., and I believe this is the case with almost every officer here.

The absence of General Putnam still continued, and the people of the province, regarding the works as under his command, and greatly incensed at the course he had pursued as commander in the Highlands, refused to render the necessary assistance while he remained, even nominally, at the head of the department; indeed, the current of public opinion ran so strongly against him that on the 16th of March Washington ordered Major-General McDougall to repair to

OLD FORT PUTNAM, THE KEY TO THE DEFENSES AT WEST POINT.

the Highlands and assume the chief command there, comprehending "the forts among the other objects of his trust." De la Radière had left as early as the 11th of March, and, visiting Congress, was relieved from duty by the appointment of Kosciuszko as the engineer, who arrived at the works on the 26th of March. General McDougall arrived on the 28th of the same month and assumed the command.

Col. Rufus Putnam had early in the war been appointed an engineer with the rank of colonel, which position he subsequently resigned to take the command of a Massachusetts regiment, and with it he shared the triumph of Gates over Burgoyne. Early in March he was ordered with his regiment to repair to West Point, at which post he arrived at the same time with General McDougall. He had been a colaborer with Kosciuszko under General Gates at the north, and his practical skill and experience rendered him a valuable assistant to the engineer.

Operations were at once resumed and pushed forward with great vigor. "As the fort then in progress was designed to annoy the enemy's shipping, should they attempt to turn the point and force the boom a little higher up, no provision existed against a land attack in its rear. A chain of forts and redoubts was therefore laid out on the high ground bordering the plain" (Forts Wyllys, Webb, and Putnam).[a]

Colonel Putnam joined the army at Peekskill in the following June.

On the 11th of April, 1778, General McDougall issued to General Parsons the following

INSTRUCTIONS.

The hill which Colonel Putnam is fortifying is the most commanding and important of any that we can now attend to. Although it is secure in the rear from escalade, yet as it is practicable to annoy the garrison from Snook Hill, the parapet in the rear should be made cannon proof

[a] Fort Putnam was named for Col. Rufus Putnam, whose regiment, the Fifth Massachusetts, commenced it and did much toward putting it in shape.

Redoubt Webb, which stood where the present observatory is, was named for Col. Samuel B. Webb, whose regiment built it. This regiment was organized in Connecticut and was one of the "Sixteen additional Continental Regiments" raised in 1777, although during the time of the building of the redoubt Colonel Webb was a prisoner in the hands of the enemy.

Redoubt Wyllys, the remains of which are not far from the eastern abutment of the reservoir, was constructed by the third regiment of the Connecticut Line, which was commanded by Col. Samuel Wyllys, after whom the work was named.

against such as may be fired from Snook Hill. The parapet should be raised as much as possible with fascines and earth to prevent the ill consequence of splinters from the rocks. The easternmost face of this work must be so constructed as to command the plain on which Colonel Putnam's regiment is now encamped, and annoy the enemy if he should force the works now erecting by Colonel Meigs's and Colonel Wyllys's regiments, as well as to command the northernmost and highest part of the ground last mentioned, which commands the plain in the rear of the principal works at West Point. A temporary magazine should be built without delay on Colonel Putnam's hill, and have ten days' provision of salt meat and biscuit for his regiment deposited on the hill as soon as it arrives at West Point. This store must not be broken in upon on any pretense, till the enemy appears in force and puts it out of Colonel Putnam's power to procure supplies from West Point.

The next principal ground to be occupied for the safety of the post is the rising ground[a] to the northward of the fort near the northwest corner of the Long Barrack. It will be necessary to erect a redoubt on this ground capable of containing 120 men. The west, north, and east faces should be proof against battering cannon and the south slightly palisaded, to guard against surprise. The westernmost face, flanked by the fire of the fort, must be ditched and to mount two pieces of cannon. The north face strongly abatised. The parapet of the west face should be raised so high, if practicable, as to cover the garrison from the fire that may be made against it from the ground on which Colonel Putnam is now encamped. This redoubt is so important that it must be finished without delay. The chain to be fixed on the west side, in or near the Gap of the Snook, commanded by the fire from the east curtain of the work. The water batteries now erected on the point to be completed as soon as possible and two cannon placed in each, with the necessary shot and stores placed near them. If any of the cannon to be placed there require to be proved, it must be done before they are brought into the batteries. Such provisions as are on the plain to be removed into the fort on the enemy's first appearing in force on the river and no quantity left out at any time. Two small temporary magazines for ammunition to be made in the fort for the present to guard against rain; one also to be made for that of the cannon in the batteries on the point.

It must be left to the discretion of the commanding officer at West Point, all circumstances considered, when to fire the alarm. In case of this event taking place in the present state of the works, the security of the fort depends so much on the heights in the rear, on which the greatest force should be placed, that the commanding officer at West Point should take his quarters on the hill Colonel Putnam is now fortifying. Colonel Meigs's regiment, now at Robinson's farm, on hearing the alarm, will repair to West Point by the safest and securest

[a] Trophy Point, where Battery Sherburne was subsequently erected.

passage. Six companies of his and Colonel Wyllis's regiment will take post in the works they are respectively erecting. The other two companies, with the invalids of the post and artificers, are to garrison the fort under the orders of Major Grosvenor. Colonel Webb's regiment is to take post in the works they are now making, and Colonel Sherburne's to defend the redoubt to be erected near the northwest corner of the Long Barrack. Colonel Putnam's to take post on the hill which they are now fortifying, and not to be ordered from thence, but such detachments as he or the commanding officer at the post may judge necessary to secure the avenues to his works. Should the enemy force the regiments of Colonels Wyllis, Meigs, and Webb from their works, it will be most advancive of the defense of the hill, which commands the fort, that those corps retire to defend to the last extremity the avenues leading to Colonel Putnam's redoubt, and the ground on which he is now encamped, unless some maneuver of the enemy should induce the commanding officer of the post to detach some of those corps for the security of Putnam's redoubt. If the ground on which the enemy intend to land, or the route on which he advances to our works, render it necessary to detach any corps to oppose him it must be taken from the works erecting by Colonel Wyllis's, Meigs's or Colonel Webb's regiments, and not from the fort or Putnam's redoubt, as in case of misfortune, the enemy's possessing the works first mentioned, will not be so fatal to the post as his getting possession of the fort, or Putnam's redoubt.

P. S. The west face of the redoubt to be built near the Long Barrack, to be 18 feet (high), the north and east faces 14 feet; the stones to be kept as much as possible from the upper part of the parapet of the works.

Two days after the foregoing instructions were issued (13th) General McDougall wrote that—

the fort was so nearly inclosed as to resist a sudden attack of the enemy, but the heights near it were such that the fort would not be tenable if the enemy should possess them. For this reason we are obliged to make some works on them. Mr. Kosciuszko is esteemed by those who have attended the works at West Point to have more practice than Colonel Radière, and his manner of treating the people is more acceptable than that of the latter, which induced General Parsons and Governor Clinton to desire that the former may be continued at West Point.

On the 18th of April Col. Robert Troup wrote from Fishkill to General Gates, president of the board of war, that the works at West Point were in a great state of forwardness; that Kosciuszko was very much esteemed as an able engineer, and that the latter had made many alterations in the works, which were universally approved.

"The chain," he added, "will be put across the river this week, and if the enemy let us alone two weeks longer, we shall have reason to rejoice at their moving this way."[a]

In the meantime Kosciuszko[b] labored assiduously to place West Point in a defensible condition. When General Gates was given command of the northern department, with headquarters at Fishkill and at the Robinson House, General McDougall was ordered on April 22, 1778, to join the army at Valley Forge, and the command of West Point devolved on General Parsons.[c] In June, 1778, the principal work on the northeast corner of the plateau was sufficiently advanced to receive its garrison and its name. At first this work was called Fort Arnold, but after the ~~defection~~ of Benedict Arnold the work was called Fort Clinton, although previous to that time it was occasionally called by the latter name.

Colonel Malcolm, who commanded at West Point in August, 1778, evidently placed more reliance in his men than he did in the works, he having written this letter to Colonel Lamb:

FORT ARNOLD, *August 2, 1778.*

DR. SIR: * * * On the arrival of the General I was sent to this command, which I found in just as bad order as even your imagination can conceive. Will you believe that there was not one pound of meat in the garrison of any kind, and but two hundred barrels of flour, altho' General Glover told me everything was complete. If the enemy do come, I shall fight them in the field, which is my only chance. The works are not worth a farthing, but I flatter myself they will never more pass Dobbs Ferry. * * *

W. MALCOLM.

[a] Boynton's History of West Point.

[b] There yet may be seen on the bluff between Memorial Hall and the river a winding path near which there is a spring. This part of the grounds is still called "Kosciuszko's Garden." Thacher records a visit to West Point which he made on July 28, 1778, and states: "Here I had the pleasure of being introduced to Col. Thaddeus Kosciuszko, a gentleman of distinction, from Poland. Having recently arrived in our country, he is employed in the engineer department, with the rank of colonel. He has amused himself while stationed at this point in laying out a curious garden in a deep valley, abounding more in rocks than soil. I was gratified in viewing his curious water fountain, with spouting jets and cascades."

[c] The commanding officers at West Point during the Revolution were shifted with such rapidity that it is with difficulty that the dates of their respective régimes can be traced. Some of them commanded the post more than once.

The principal commanding officers of West Point of whom we have record, were: General Parsons, General McDougall, General Paterson, General Heath, Colonel Lamb, Colonel Malcolm, Colonel Wade, General Arnold, General St. Clair, General Greene, and General Knox. There were several others; the temporary absence of the ranking officer sometimes gave a subordinate an opportunity to command, but the duration of such periods have not, as a rule, been recorded; for instance, Lieut. Col. Aaron Burr (of Malcolm's regiment) commanded the post of West Point during a part of the winter of 1778–79.—(*Parton's Life and Times of Aaron Burr, pp. 109–110.*)

This same officer was evidently affected by lonesomeness, as on August 3, in writing to Parsons, he stated:

* * * Here I am holding committee among spades and shovels. Why was I banished? However, I begin to be reconciled. I must be so, especially as you are not moving towards York. If you do, don't be surprised to see me parade among you. We are driving on downwards. The more we do, the more we find we have to do. * * * Lend me news and newspapers, anything to keep us alive; this is actually t'other end of the world. * * *

In the early fall of 1778, while on an inspecting tour in the Highlands, Washington visited West Point, and wrote the following letter from Fort Arnold (Clinton) to General Duportail, the chief engineer:

FORT CLINTON,[a] *West Point, September 19, 1778.*

SIR: I have perused the memorial which you delivered relative to the defense of the North River[b] at this place, and upon a view of it highly approve what you have offered upon the subject. Colonel Kosciusko, who was charged by Congress with the direction of the forts and batteries, has already made such progress in the constructing of them as would render any alteration of them in the general plan a work of too much time, and the favorable testimony which you have given of Colonel Kosciusko's abilities prevents any uneasiness on this head.

An additional regiment, which was from Massachusetts, was assigned to West Point in November, 1778.[c]

In case of an attack the authorities counted on the garrison at West Point being assisted by the neighboring militia, to assemble which and to give a general alarm there was quite a good system of giving signals by means of beacon fires, flags, cannon, and express riders connecting Sandy Hook with Fishkill and both of these places with points in New Jersey and Connecticut. One of the signal stations was on top of Storm King.[d]

[a] At another time Washington designates this work Fort Arnold.

[b] Formerly the Hudson was at times called the North River, in contradistinction to the Delaware River, which was called the South River.

[c] During this year some of the labor on the works at West Point was performed by captured loyalists working without pay. On November 20, 1778, Malcolm reported to Governor Clinton that he had about two dozen Tories at work, but that he never kept any one of them for a longer period than three months.

[d] The Revolutionary authorities had a system of signal stations which connected the frontier posts in West Chester with Beacon Hill (Fishkill), and from thence diverged along the hills east into Connecticut and south and west through New Jersey as far as Sandy Hook. In the daytime signals were made by flags and alarm cannon, and at night fires were used in place of flags; express riders were also employed. This system was designed to apprise distant posts of the movements of the enemy and to summon the militia to arms. The hill immediately north of Crow Nest, which at present is called Storm King, was known as Butler Hill in Revolutionary days.

On March 18, 1779, Governor Clinton issued the following:

General Orders.—The Signal of Alarm being fixed by the Honorable Major General McDougall, on the 19th Feb. last, are as follows, viz:

When Five Topsail vessels appear coming up of the Enemy three Cannon will be fired at Kings Ferry (Stony Point), five Minutes after each other; and if ten Vessels appear, four Cannon will be fired at the same Distance of Time, and in this Manner if a greater number of Ships appear, that is one gun for every five that shall exceed that number.

These Signals will be answered by the firing of the heaviest Cannon at West Point in the same Manner.

It is his Excellency the Governor's Orders that the same be Communicated to the Officers of the respective Regiments of Militia of the Counties of Duchess, Ulster and Orange, who are strictly charged to see their men are properly provided with arms and ammunition and held in the most perfect Readiness; and that upon the alarm being given, Colonel Commandant Swartwout's Brigade will immediately march to Fishkill, and there wait further Orders, and the Regiments of Ulster and Orange (the Western Frontier Companies who are to attend to the Protection of the Frontier Settlements excepted), to the Post at West Point. * * *

Eleven miles below West Point are located Stony Point and Verplanck's Point, which in the Revolutionary war were not only important as outposts of the system of posts of which West Point was the center, but also because they were placed at each end of King's Ferry, which was of great importance as a part of the line of communication between New England and the South.

In May, 1779, the Americans had a few men posted at Stony Point and a few at Verplanck's Point. On May 31 Sir Henry Clinton with a formidable force took Stony Point, and on the next day occupied Verplanck's Point. He left a garrison of over 500 at Stony Point and a smaller garrison at Verplanck's Point. The greater portion of the Army was concentrated in the highlands, and the garrison at West Point was again augmented. About this time General McDougall was again given command of West Point, which was garrisoned by Larned's, Patterson's, and the Carolina brigades. General Heath commanded the troops stationed across the Hudson from West Point; one brigade was on Constitution Island, one on the road to Fishkill, and another near the "Robinson house." General Putnam was near Haverstraw with the main body of the Army.

VIEW OF STONY POINT AND MEDAL GRANTED BY CONGRESS TO GENERAL WAYNE.

Washington had organized a short time previously a corps of light infantry, consisting of four regiments, each of which contained about 340 officers and men, selected from about all of the organizations in and around West Point.

The command of this corps was given to Wayne, who was directed by Washington to capture Stony Point. Preparatory to undertaking this venture, Wayne's command was assembled and encamped a few miles south of West Point, at a place called Sandy Beach, which was located between Fort Montgomery and the present town of Highland Falls.

On July 15 Wayne paraded his troops for a careful inspection, but after the completion of which, instead of dismissing them to their quarters, he wheeled them into column and took up his march to Stony Point, which at midnight he successfully assaulted with the bayonet.[a] This movement was the most successful and brilliant exploit of the Revolution.[b] Wayne captured about 27 officers and 416 enlisted men, besides valuable munitions of war. After destroying the works he withdrew. The British shortly afterwards again garrisoned Stony Point, but abandoned the place after a short occupancy.

While Wayne's movement was taking place Washington, ever jealous of West Point, had so disposed the remainder of his command as to most securely guard that post in case of Wayne's defeat, or in case of any strong combination of the enemy against West Point, as it was very much feared at the time by our leaders that the British would make a desperate attempt to capture the place, which the Americans regarded as their stronghold.

Baron Steuben, writing from West Point on July 27, 1779, said:

* * * Whatever means they employ, I am positive their operations are directed exclusively to getting possession of this post and of the river as far as Albany. If this is not their plan, they have not got one which is worth the expense of the campaign. On their success depends the fate of

a Immediately after the fall of Stony Point, Wayne sent the following to Washington:

"STONY POINT, *15th July, 1779—2 o'clock a. m.*

"DEAR GENL: The fort & Garrison with Colo. Johnston are ours. Our Officers and men behaved like men who are determined to be free.

"Yours most sincerely, "ANT'Y WAYNE."

b See the storming of Stony Point, Johnston.

America. The consequence is, therefore, that there is nothing of greater importance to us than to avert this blow. Let them burn whatever they have not burned already, and this campaign will add to their shame but not to their success. Were West Point strongly fortified, supplied with sufficient artillery, ammunition, and provisions, and a garrison of 2,000 men, we ought not to be induced to take our forces more than a day's march from it. To have the means of relieving it, I go further and say that our army should be destroyed or taken before we allow them to commence an attack on West Point. * * * Let us defend the North River and hold West Point, and the end of our campaign will be glorious. * * *

Washington, knowing the weakness of his army and the strength afforded to it by the terrain around West Point, refused to allow himself to be drawn by Sir Henry Clinton into the open country, and the latter, aware of the difficulties attending a campaign in the Highlands, refused to attack Washington at bay at West Point.

On September 9, 1779, Clinton, writing to General Haldiman, who was in Canada, said:

* * * In the first place I opened the campaign three weeks before Washington expected, or was prepared for it. I seized his short communication with the Eastern Provinces by King' Ferry. I did suppose he must either march directly to recover it, risking a general action under unfavorable terms, or put himself immediately behind the mountains to save Fort Defiance, &c., at West Point. He had reason to be jealous of that Post, tho' without a fleet and a very superior army it is not attackable, and, for other motives, I should never form an idea of attacking it. He threw himself behind the mountains, where he was much distressed, as he was still obliged to live from his magazines at Trenton and Easton (Penn.). The country furnished little grass for cavalry or carriage horses, and the effects of a severe winter upon the roads were unrepaired. * * *

On July 28, 1779, Washington moved his headquarters to West Point and remained there until November 28 of the same year. He occupied "Moore's house," from whence a number of his orders were issued. It is not known whether or not he occupied any other house at West Point during this time.

During the summer of 1779 Fort Putnam, Redoubts Webb and Wyllys, and some outlying works were completed,[a] to

[a] In addition to the forts and redoubts at West Point there were some smaller works and block houses placed on commanding points on the neighboring hills.

accomplish which the roster for fatigue duty sometimes numbered 2,500 men per day.

In the autumn of 1779 the distribution of the American troops in and around West Point is shown by General Heath's entry in his memoirs, under the date of September 9, 1779, in which he states:

> The American Army remained in its former position—the Virginia line near Ramapaugh, on the right; the light infantry, near Fort Montgomery; the Maryland line, on the left of the light infantry; Pennsylvania line and two brigades of Massachusetts, at West Point; North Carolina brigade, at Constitution Island; the Connecticut line, on the east side of the Hudson, between Nelson's and Robinson's; Nixon's brigade, at the gorge of the mountains, above the Continental Village; Glover's brigade, Moylan's, Sheldon's and Armand's horse at Lower Salem. On the west side of the Hudson, besides Fort Clinton at West Point and Fort Putnam on the height back of it, there were seven or eight redoubts, built and building. On the east side of the river, the north and middle redoubts, and a redoubt at the gorge of the mountain.

This disposition was one well calculated for the defense of West Point, as troops from the outlying posts could be marched there in a very short space of time.

On September 15 the Count de la Luzerne, recently appointed minister from France, visited Washington at West Point.

In the latter part of November the troops in the highlands were distributed to their stations for the winter. The Massachusetts line was left to garrison West Point and the adjacent highlands. The command of all posts and troops on the Hudson was given to General Heath. This officer, under the date November 25, 1779, made the following entry in his diary:

> *25th.*—The troops were moving to their different places of cantonment; many of the soldiers (as fine men as ever stood in shoes) were marched barefooted over the hard-frozen ground, and with an astonishing patience. Remember these things, ye Americans, in future times!

On January 3, 1780, Heath recorded:

> The snow had got to be about four feet deep on a level, and the troops were driven to great difficulties in keeping open the communications to the posts—obtaining provisions, fuel, forage, etc., and so intense and steady was the weather that for more than twenty days there could

not be discovered the least sign of the remission of the snow in any places the most open to the influences of the sun. The Hudson soon becoming passable on the ice, the troops were comfortably supplied with provisions; but many were in extreme want of cloathing.

During this winter the south barracks in Fort Arnold was burned, some of the stores were lost, and the north redoubt was twice in flames.

In April, 1780, Heath was succeeded in command by General Howe. Washington, thinking that the British intended a move against West Point, strengthened the garrison and sent both McDougall and Baron Steuben to that post. Shortly afterwards the British did entertain plans for the reduction of West Point, but not of the character anticipated by Washington.

Maj. Gen. Baron Steuben, Inspector-General, who had seen seven campaigns in the service of Frederick the Great, labored at West Point from about the middle of June until about the 1st of August, 1780, in disciplining and instructing the troops and in forming a corps of light infantry. There were in Howe's command about 3,000 old soldiers, two-thirds of whom and all of the recruits were drilled each day. The recruits were excused from guard and fatigue duty in order that no time should be lost in making them proficient in their drill. The men were exercised twice each day, one hour and a half at reveille and one hour and a half near retreat. At these exercises the commanding officers of regiments had to attend and were answerable for the attendance of the officers of their respective regiments, and on no account were the recruits allowed to be exercised by other than commissioned officers. Steuben at this time was busy also in forming a corps of light infantry from men selected from the regiments in and around West Point. On July 28 he wrote to Washington:

I have made the necessary arrangements for the light infantry and shall be happy if they meet Your Excellency's approbation. The companies are formed agreeably to Your Excellency's orders. I have myself chosen the non-commissioned officers and soldiers, and even the arms, and I dare flatter myself that the corps will be the admiration of our allies as much as the terror of our enemies. There is hardly a man

I Benedict Arnold Major General do acknowledge the UNITED STATES of AMERICA to be Free, Independent and Sovereign States, and declare that the people thereof owe no allegiance or obedience to George the Third, King of Great-Britain; and I renounce, refuſe and abjure any allegiance or obedience to him; and I do Swear that I will, to the utmoſt of my power, ſupport, maintain and defend the ſaid United States againſt the ſaid King George the Third, his heirs and ſucceſſors, and his or their abettors, aſſiſtants and adherents, and will ſerve the ſaid United States in the office of Major General which I now hold, with fidelity, according to the beſt of my ſkill and underſtanding.

Sworn before me this B Arnold
30th. May 1778 at the
Artillery Park Valley Forge H Knox B Gen.l

FACSIMILE OF THE OATH OF ALLEGIANCE TO THE UNITED STATES, SIGNED BY BENEDICT ARNOLD AT VALLEY FORGE, 1778.

under 20 or above 30 years of age; they are all robust and well made, and have indeed a military appearance. * * * Nearly two-thirds of every company will be old soldiers.

Maj. Gen. Benedict Arnold was assigned to the command of West Point and its dependencies in August, 1780. Arnold had been assigned to the command at Philadelphia after distinguished service in the American cause, notably in his expedition against Quebec in 1775, and in the operations resulting in the surrender of Burgoyne, in both of which campaigns he had been wounded.

While at Philadelphia, Arnold's conduct was far from satisfactory. His open preference for the British faction, his financial methods and embarrassments, caused by living far beyond his means, and his administration generally, not only gave umbrage to the Americans but also gave grounds for serious charges, upon which he was brought to trial and sentenced to be reprimanded. Arnold was also smarting under the fact that several of his juniors had been promoted over his head. Washington had held a high opinion of Arnold's military capacity, and the reprimand is curious as complying with the letter of the sentence and at the same time expressing confidence in the offender. When Arnold, with his own ends in view, sought the command at West Point, Washington offered him the command of the left wing of the army then in the field. Arnold pleaded to be given the West Point command, stating that the wound he had received at Saratoga prevented active field duty. His preference was gratified; he arrived at his new post on August 5, and made his headquarters in the Robinson House.

So far Arnold had allayed suspicion as to his object in seeking this post, but the fact was that he had been in secret correspondence with the British since April, 1779, nearly a year and a half previous to the time of his betrayal of West Point.[a] It is not known how much assistance he had given to the enemy during these eighteen months. He desired

[a] In September, 1779, Lord Germain wrote to Sir Henry Clinton: "Next to the destruction of Washington's Army, the gaining over officers of influence and reputation among the troops would be the speediest means of subduing the rebellion and restoring the tranquillity of America. Your commission authorizes you to avail yourself of such opportunities, and there can be no doubt that the expense will be cheerfully submitted to."

rank in the British service and he desired and needed money. Neither of these rewards could he claim to any great degree if he simply deserted the American cause, but if in addition he could place the British in possession of the most important American post, he could obtain what his ambition demanded. Therefore, Arnold, who was essentially a field soldier, declined an important command in the field which promised much, and sought the command of West Point, which he intended to use as a salable commodity. Doubtless he had lost faith in the ultimate success of the Americans and believed that he was deserting a hopeless cause.

Arnold was only a few weeks at West Point, but he found time to practice some of the methods which had characterized his régime in Philadelphia. Alexander Hamilton, writing to Laurens, stated:

* * * Added to the scene of knavery and prostitution during his (Arnold's) command in Philadelphia, which the late seizure of his papers has unfolded, the history of his command at West Point is a history of little as well as great villainies. He practiced every dirty art of peculation, and even stooped to connections with the sutlers of the garrison to defraud the public."[a]

Shortly after arriving at West Point, Arnold sought to come to terms with the British about the sale of the post. If he had succeeded in surrendering West Point the result would have been most disastrous to the American cause. America, as well as Great Britain, was tired of the war, and a large number of our people were willing to return to the old conditions. Governor Reed, of Pennsylvania, said in August, 1780:

[a] On August 13, 1780, Major Bauman of the Artillery, on duty at West Point, wrote a curious letter to Hamilton in which Bauman laments the existing order of things at West Point, he stated "* * * The troops have and still suffer from those and more like cases, they have been cheated in weights, in measure, and in their scanty allowance of fatigue rum. * * * * * There is not in all this garrison a proper guard house for the Conveniency of Soldiers, nor for the Security of the Criminals, no powder magazine, nor a store for the reception and reserve of the Empliments of War. In short, the whole appears at present under the care of ingoverable and undisciplined Militia, like a wild Tatars Camp, instead of that shining fortification all America thinks not only an insurmountable Barrier against the Excursion of its Enemy, but likewise, an easy Defence in case of an unforeseen Disaster of its Army. * * * And let me once more in confidence assure you that I suffer incessant pain, not from any apprehensive view of fear, but from the present state this garrison is in. To rectify defects *my dear sir* when Roused to Arms, can never be attainable. * * * and as there is still room left on this sheet for another Paragraph, of still greater consequences intimately connected with the rest; I shall finish and prognosticate; that should ever capriciousness be on one side of the Contrast, may proofe fatal to this Post. For here is an officer by the appellation of Commandant of the Garrison, and a major-general in the field as it were, who issues publick orders for the internal police of this Garrison. * * *"—*Manuscript in Library of State Department.*

"It is obvious that the bulk of the people are weary of the war." The Treasury was exhausted. The ill-paid troops were inadequately clothed and often hungry; more than one regiment had mutinied. "There never has been a stage of the war," said Washington, "in which dissatisfaction has been so general and so alarming."

Lieutenant-General Robertson, of the British Army, stationed in New York, on September 21 wrote to the ministry: "So I will only say in general that since the year 1777 I have not seen so fair a prospect for the return of the revolted provinces to their duty."

The defeat of Gates at Camden on August 16, 1780, had had a disheartening effect. It would have been most unfortunate for us if our French allies had witnessed our strongest fortress turned over to the British by a major-general, who gave as one of his reasons his dislike for the alliance with the French.

The immediate material benefits to be obtained by the British from the surrender of West Point were also very great. It was practically the only stronghold of magnitude possessed by the Americans; three years of labor and $3,000,000 had been expended in fortifying it; the garrison contained a considerable fraction of the army; its surrender would have unlocked for the British the highway to Canada, and would have allowed them to separate the eastern colonies from the others. The morale of the American leaders would have been shaken, and their hopes dispelled; they had trusted in West Point, no matter what accidents might befall them in the field. The ordnance and other supplies contained at West Point if lost could probably not have been replaced by the Americans. The loss of this post would have paralyzed any movement which Washington's army might have been engaged upon at the time. It was thought that Washington contemplated an early movement on New York, in which the French were to assist him, and it was Sir Henry Clinton's plan to counteract this by receiving the surrender of West Point. Clinton's despatch of October 11, 1780, stated:

> My idea of putting into execution this concerted plan with General Arnold with most efficacy, was to have deferred it till Mr. Washington,

cooperating with the French, moved upon this place [New York] to invest it, and that the rebel magazines should have been collected and formed in their several depots, particularly that at West Point. General Arnold surrendering himself, the forts and garrisons at this instant would have given every advantage which could have been desired. Mr. Washington must have instantly retired from King's bridge and the French troops upon Long Island would have been consequently left unsupported, and probably would have fallen into our hands. The consequent advantage of so great an event I need not explain.

Much, if not all, of Arnold's correspondence with the British was carried on with Maj. John André,[a] adjutant-general of the British army in America, the former writing under the pseudonym of "Gustavus," and the latter under that of "John Anderson." A number of letters passed between them—how many is not known. An extract from this correspondence is the following letter from Arnold to André:

AUGUST 30, 1780.

SIR: On the 24th instant I received a note from you without date, in answer to mine of the 7th of July; also a letter from your house of the 24th July in answer to mine of the 15th, with a note from Mr. B—— of the 30th of July, with an extract of a letter from Mr. J. Osborn of the 24th. I have paid particular attention to the contents of the several letters. Had they arrived earlier you should have had my answer sooner. A variety of circumstances has prevented my writing you before. I expect to do it very fully in a few days, and to procure you an interview with Mr. M——e, when you will be able to settle your commercial plan, I hope, agreeable to all parties. Mr. M——e assures me that he is still of opinion that his first proposal is by no means unreasonable, and makes no doubt, when he has had a conference with you, that you will close with it. He expects, when you meet, that you will be fully authorized from your House; that the risks and profits of the copartnership may be fully and clearly understood.

[a] Maj John André was of Swiss and French extraction, and was born in England about 1751. He entered the British service in 1771 as second lieutenant in the Royal English Fusileers. In 1774 he took station in Canada, and was a member of the garrison of St. Johns when it capitulated to General Montgomery in November, 1775. André was first sent as a prisoner to Lancaster and afterwards to Carlisle, Pa. In December, 1776, he was exchanged. In January, 1777, he was made a captain in the Twenty-sixth Foot, and later in the year was appointed aid-de-camp to Major-General Grey. The next year André was appointed aid-de-camp to Sir Henry Clinton, with the provincial rank of major. In 1779 he was appointed adjutant-general of the British forces in America.

Major André's rank in the regular establishment was never higher than that of captain; but if the enterprise he attempted against West Point had succeeded there is no doubt that he would have received considerable advancement. It is said that the King, in remembrance of André's services, ordered 1,000 guineas from his private purse to be paid to André's mother and an annual pension of £300 to be settled upon her for life, and for the same reason the King conferred a baronetcy upon André's brother.

Major André was buried beneath his gibbet, but in 1821 his remains were removed to England, where they rest in Westminster Abbey.

A speculation might at this time be easily made to some advantage with *ready money*, but there is not the quantity of goods *at market* which your partner seems to suppose, and the number of speculators below, I think, will be against your making an immediate purchase. I apprehend goods will be in greater plenty and much cheaper in the course of the season; both dry and wet are much wanted and in demand at this juncture. Some quantities are expected in this part of the country soon. Mr. M——e flatters himself that in the course of ten days he will have the pleasure of seeing you. He requests me to advise you that he has ordered a draft on you in favor of our mutual friend S——y for £300, which you will charge on account of tobacco. I am, in behalf of Mr. M——e & Co., sir, your obedient humble servant,

GUSTAVUS.

Mr. JOHN ANDERSON, *Merchant*,
To the care of James Osborn, to be left at the Reverend Mr. Odell's, New York.[a]

Now that Arnold was actually in command at West Point, Sir Henry Clinton lost no time in attempting to take advantage of the situation. On September 14 Clinton received a powerful ally in the distinguished British sailor, Admiral Sir George Rodney, who on that date put into New York Harbor with a squadron. For many reasons it was now necessary that the intercourse with Arnold, which had been by letters, should culminate by a personal interview between him and some representative of Sir Henry Clinton.

At this period Sir George Rodney arrived with a fleet at New York, which made it highly probable that Washington would lay aside all thoughts against this place. It became, therefore, proper for me no longer to defer the execution of a project which would lead to such considerable advantages nor to lose so fair an opportunity as was presented, and under so good a mask as the expedition to the Chesapeake, which everybody imagined would of course take place. Under this feint I prepared for a movement up the North River. I laid my plan before Sir George Rodney and General Knyphausen, when Sir George, with

[a] Winthrop Sargent, author of a life of André, says of this letter: "Translated from its commercial phraseology into plain English, this letter teaches us that on the 7th of July Arnold had declared the probability of his obtaining the command of West Point, and the inspection he had just made of its defenses; and had written again on the 15th, when the projections connected with the arrival of the French may have been mentioned. The terms upon which he was to surrender were also doubtless named. To these André had replied in two notes; and, if we may suppose that B stood for Beverly Robinson, and J. Osborn for Sir H. Clinton, communications from these were likewise apparently conveyed. It may be easily gathered also that the present strength of the garrison, both in militia and continentals, was indicated; and that the feasibility of a coup de main, and the danger of the troops at Verplanck's retarding such an undertaking, were suggested. It will be observed that Gustavus writes as an agent for Mr. M——e: elide the dash, and we have Mr. Me; in other words, himself."—*Sargent's Life of Major André, p. 259.*

that zeal for His Majesty's service which marks his character, most handsomely promised to give me every naval assistance in his power.

It became necessary at this instant that the secret correspondence under feigned names, which had so long been carried on, should be rendered into certainty, both as to the person being General Arnold, commanding at West Point, and that in the manner in which he was to surrender himself, the forts, and troops to me, it should be so conducted under a concerted plan between us, as that the King's troops sent upon this expedition should be under no risk of surprise or counterplot; and I was determined not to make the attempt but under such particular security.

I knew the ground on which the forts were placed, and the contiguous country, tolerably well, having been there in 1777; and I had received many hints respecting both from General Arnold. But it was certainly necessary that a meeting should be held with that officer for settling the whole plan. My reasons, as I have described them, will, I trust, prove the propriety of such a measure on my part. General Arnold had also his reasons, which must be so very obvious as to make it unnecessary for me to explain them.

Many projects for a meeting were formed, and consequently several attempts made, in all of which General Arnold seemed extremely desirous that some person who had my particular confidence might be sent to him; some man, as he described it in writing, *of his own mensuration.*

I had thought of a person under this important description who would gladly have undertaken it, but that his peculiar situation at the time, from which I could not release him, prevented him from engaging in it. General Arnold finally insisted that the person sent to confer with him should be Adjutant-General Major André, who indeed had been the person on my part who managed and carried on the secret correspondence.[a]

On September 7 Colonel Sheldon, who commanded an American advanced post some 10 or 15 miles northeast of Tarrytown, received the following letter from André:

NEW YORK, 7 *Sept., 1780.*

SIR: I am told my name is made known to you, and that I may hope your indulgence in permitting me to meet a friend near your outposts. I will endeavour to obtain permission to go out with a flag, which will be sent to Dobb's Ferry on Sunday next the 11th at 12 o'clock, when I shall be happy to meet Mr. G. Should I not be allowed to go, the officer who is to command the escort, between whom and myself no distinction need be made, can speak on the affair.

Let me entreat you, sir, to favour a matter so interesting to the parties concerned, and which is of so *private a nature that the public on neither side can be injured by it.*

[a] Sir Henry Clinton to Lord George Germain.

I shall be happy on my part of doing any act of kindness to you in a family or a property concern, of a similar nature.

I trust I shall not be detained but should any old grudge be a cause for it, I should rather risk that than neglect the business in question or assume a mysterious character to carry on an innocent affair and as friends have advised get to your lines by stealth. I am with all regard Yr. most humble sert.

JOHN ANDERSON.[a]

This letter was written to apprise Arnold that André desired to see him and to give Arnold an opportunity of directing Sheldon to send André to Arnold's headquarters. Arnold notified Sheldon that he expected to meet a friend at his quarters through whom he desired to open "a channel of intelligence." Sheldon replied to Arnold that he was ill and could not be present at the meeting, and advised Arnold to meet this person at Dobbs Ferry. Arnold left the Robinson House on the 10th, and, going to Haverstraw on the 11th, he attempted to cross the river to the trysting place, but some British gunboats, not in the secret, opened fire on Arnold's barge and compelled him to retire at the risk of his life; he was nearly captured by a boat from the *Vulture*, sloop of war. He then went to an American post on the west shore opposite to Dobbs Ferry, and having waited in vain until nightfall for some sign of André he returned to his headquarters. To allay suspicion, Arnold wrote from Dobbs Ferry to Washington, explaining his being so far from his headquarters by the statement that he had gone to Dobbs Ferry for the purpose of arranging a set of signals to give the alarm in case the enemy came up the river.

On September 16, the *Vulture*[b] appeared off Teller's Point opposite Haverstraw, having on board Col. Beverly Robinson, the Tory officer who was assisting in the Arnold-André plot, and who was the owner of the house in which Arnold was

[a] This letter was afterwards submitted to the board of officers to which André's case was referred. It is hard to understand how an officer of André's character and reputation could allow himself to write such a letter and so abuse a flag of truce which has been instituted amongst nations to ameliorate the conditions of war, and the strict observance of the principles governing its use is inseparable from the principles of honor. "All's fair in war" does not apply to a flag of truce.

[b] If any omen might be derived from names, the *Vulture* was a fortunate ship for the enterprise. She herself had been very successful against our privateers; and thirty-five years before we find a band of prisoners, some of them detained as spies (comprising not only the celebrated Home, in whose tragedy André had delighted to bear a character, but Witherspoon, now active for the Congress, and Barrow, in arms for the King), had escaped from Charles Edward's hands, and flying from Doune castle by Tullyallan, were received on board the sloop-of-war *Vulture*, Captain Falconer.—*From Life of Major André, by Winthrop Sargent.*

quartered. Robinson sent a letter to Arnold, ostensibly to inquire about his property, but really to signify his presence on board and that he wished to negotiate about matters other than those affecting his estate; this letter was sent ashore under a flag of truce.

Washington and his staff, on their way to Hartford to meet the French commander, crossed the Hudson on September 18 at Kings Ferry. Arnold accompanied the party as far as Peekskill. While crossing the river, the *Vulture* was seen and her object up the river was discussed. Arnold showed Washington the letter from Robinson, and Washington disapproved of Arnold holding any direct communication with Robinson. On the 19th, Arnold replied to Robinson, declining to hold further communication with him, but inclosing in this official letter two other letters, one of them for Robinson and the other for André. The tenor of these two letters was for the arrangement for a meeting with André. The latter came up from New York on the evening of September 20. On the 21st a complaint that certain Americans had fired on a flag of truce was sent ashore from the *Vulture*. This complaint was signed by the captain of the vessel and was countersigned by "his secretary" John Anderson, which was done for the purpose of apprising Arnold of André's presence on board the *Vulture*.

Another agent in this matter now appeared in the person of one Joshua Hett Smith,[a] whose house was about 2½ miles below Stony Point, on the Haverstraw road. At about midnight on the 21st, Smith, in a boat, without a flag of truce, manned by two of his tenants, was sent by Arnold to the *Vulture*, while Arnold went to the appointed rendezvous, which was about 2 miles below Haverstraw, at the foot of the mountain south of that place. Smith returned from the *Vulture*, with André in uniform.[b] Arnold was hidden in the firs near the shore, and there he and André were engaged until the approach of dawn made it dangerous to remain in that locality. Arnold and André then proceeded

[a] Joshua Hett Smith was a lawyer of means and was a brother of William Smith, who was a Loyalist chief justice of New York in the Revolution.

[b] André landed a short distance north of the northern end of the present West Shore Railroad tunnel south of Haverstraw.

to Smith's house."[a] As they entered the town of Haverstraw they were challenged by an American sentinel; it was then that André entered the American lines.

Colonel Livingston, the American commander at Verplancks Point, had been annoyed by seeing the *Vulture* hovering about that part of the Hudson for the past several days and had brought a 4-pounder to within range of the sloop, and when day broke Livingston opened such a fire upon the *Vulture* that she dropped down-stream. From Smith's house André heard the firing, and was dismayed to see his ship compelled to change her anchorage. During the greater part of the forenoon Arnold and André remained closeted together, doubtless perfecting plans for the betrayal of West Point, and discussing the price Arnold was to receive.

Before Arnold left André, he did the astonishing thing of intrusting to the latter certain papers, which, if discovered, would implicate both. Clinton had cautioned André not to change his uniform nor to carry papers. Possibly the papers were given by Arnold, thinking that they would serve as a guaranty of his intentions. Most of the information they contained was probably already possessed by the British.

The papers in question were the following:

[In Arnold's handwriting]

WEST POINT, *September 5th, 1780.*

Artillery Orders.

The following disposition of the corps is to take place in case of an alarm:

Capt. Dannills with his Comp'y at Fort Putnam, and to detach an officer with 12 men to Wyllys's Redoubt, a Non Commissioned officer with 3 men to Webb's Redoubt, and the like number to Redoubt No. 4.

Capt. Thomas and Company to repair to Fort Arnold.

Captain Simmons and Company to remain at the North and South Redoubts, at the East side of the River, until further Orders.

Lieutenant Barber, with 20 men of Capt. Jackson's Company, will repair to Constitution Island; the remainder of the Company, with Lieut. Mason's, will repair to Arnold.

[a] Smith's house is still standing in West Haverstraw, and is situated nearly a mile north by west from the present West Shore Railroad station. Washington dined with Arnold in Smith's house on the day he started for Hartford to meet Rochambeau. He also used it as a temporary headquarters when the allied armies were crossing King's Ferry on their way to Yorktown.

Capt. Lieut. George and Lieut. Blake, with 20 men of Captain Treadwell's Company, will Repair to Redoubt No. 1 and 2; the remainder of the Company will be sent to Fort Arnold.

Late Jones's Company, with Lieut. Fisk, to repair to the South Battery.

The Chain Battery, Sherburn's Redoubt, and the Brass Field pieces, will be manned from Fort Arnold, as Occasion may require.

The Commissary and Conductor of Millitary Stores will in turn wait upon the Commanding Officer of Artillery for Orders.

The artificers in the garrison, (agreeable to former Orders), will repair to Fort Arnold, and there receive further Orders from the Command'g Officer of Artillery.

S. BAUMAN, *Major Comm't Artillery.*

[In Arnold's handwriting]

Estimate of Forces at W'st Point and its dependencies, September 13, 1780.

A brigade of Massachusetts Militia, and two regiments of Rank and File, New Hampshire, Inclusive of 166 Batteaux Men at Verplanck's and Stony Points	992
On Command and Extra Service at Fishkills, New Windsor, &c, &c, who may be called in occationally	852
3 regiments of Connecticut Militia, under the Com'd of Colonel Wells, on the lines near N. Castle	488
A detachment of New York levies on the lines	115
Militia	2,447
Colonel Lamb's Regiment	167
Colonel Livingston's at Verplank and Stony Pts	80
Continent	247
Colonel Sheldon's Dragoons, on the lines, about one half mounted	250
Total	3,080

(In the handwriting of Villefranche, a French engineer.)

Estimate of the number of men necessary to man the works at West Point and in the vicinity.

Fort Arnold	620	Redoubt No. 2	150	Redoubt No. 7	78
Putnam	450	ditto 3	120	North Redoubt	120
.... Wyllys	140	ditto 4	100	South Redoubt	130
.... Webb	140	ditto 5	139		
Redoubt No. 1	150	ditto 6	110	Total	2,438

VILLEFRANCHE, *Engineer.*

N. B. The Artillery Men are not included in the above estimate.

[In Arnold's handwriting.]

[Endorsement.]

Remarks on Works at West Point. A copy to be transmitted to His Excellency General Washington, Sep'r, 1780.

Fort Arnold is built of Dry Fascines and Wood, is in a ruinous condition, incompleat, and subject to take Fire from Shells or Garcasses.

Fort Putnam, Stone, wanting great repairs, wall on the East side broke down, and rebuilding From the Foundation. At the West and South side have been a Chevaux-de-Frise; on the West side broke in many Places. The East side open; two Bomb Proofs and Provision Magazine in the Fort, and Slight Wooden Barrack. A commanding piece of ground 500 yards West, between the Fort and No. 4—or Rocky Hill.

Fort Webb, built of Fascines and Wood, a slight Work, very dry, and liable to be set on fire, as the approaches are very easy, without defenses, save a slight Abattis.

Fort Wyllys, built of stone, 5 feet high, the Work above plank filled with Earth, the stone work 15 feet, the Earth 9 feet thick—No Bomb Proofs, the Batteries without the Fort.

Redoubt No. 1—On the South side wood 9 feet thick; the Wt., North and East sides 4 feet thick, no cannon in the works; a slight and single Abattis, no ditch or Pickett. Cannon on two Batteries. No Bomb Proofs.

Redoubt No. 2—The same as No. 1, No Bomb Proofs.

Redoubt No. 3, a slight Wood Work 3 Feet thick, very Dry, no Bomb Proofs, a single Abbattis, the work easily set on fire—no cannon.

Redoubt No. 4, a wooden work about 10 feet high and four or five feet thick, the West side faced with a stone wall 8 feet high and four thick. No Bomb Proof, two six pounders, a slight Abattis, a commanding piece of ground 500 yards Wt.

The North Redoubt, on the East side, built of stone 4 feet high; above the stone wood filled in with Earth, very Dry, no Ditch, a Bomb Proof, three Batteries without the Fort, a poor Abbatis, a Rising Piece of ground 500 yards So., the approaches under cover to within 20 yards.—The Work easily fired with Faggots diptd in Pitch, &c.

South Redoubt, must the same as the North, a Commanding piece of ground 500 yards due East—3 Batteries without the Fort.

These "remarks" were accompanied by the report of the council of war, held at Washington's headquarters September 6, 1780, which document, setting forth the weakness, wants, and gloomy prospects of the American Army, is as follows:

At a council of War, held in Camp Bergen County, Sept. 6th, 1780. Present—the Commander-in-Chief

The Commander-in-Chief states to the Council, that since he had the honor of laying before the General Officers, at Morristown, the 6th of June last, a general view of our circumstances, several important events have occurred, which have materially changed the prospects of the Campaign.

That the success (assistance) expected from France, instead of coming out in one body, and producing a Naval Superiority in these Seas, has been divided into two Divisions, the first of which only consisting of seven ships of the line, one forty-four and three smaller Frigates, with five thousand land Forces, had arrived at Rhode Island.

That a Reinforcement of six ships of the line from England having reinforced the Enemy, had made their Naval Force in these seas amount to Nine Sail of the Line, Two Fifties, two forty-four, and a number of smaller Frigates, a Force completely superior to that of our Allies, and which has in consequence held them Blocked up in the harbor of Rhode Island till the 29th ult., at which Period the British Fleet disappeared, and no advice of them has since been received.

That Accounts received by the *Alliance* Frigate, which left France in July, announces the Second Division to be confined to Brest with several other Ships by a British Fleet of thirty-two Sail of the line, and a Fleet of the Allies of Thirty-six, or thirty-eight Ships of the line ready to put to sea from Cadiz to relieve the Port of Brest.

That most of the States in their answers to the requisitions made of them, give the strongest assurances of doing every thing in their power to furnish the men and supplies required for the expected Co-operation. The effect of which, has been far short of our expectations, for not much above one-third of the Levies demanded for the Continental Battallions, nor above the Same proportion of Militia have been assembled, and the Supplies have been so inadequate that there was a necessity for dismissing all of the Militia, whose immediate services could be dispensed with to lessen our consumption, notwithstanding which the Troops now in the Field are severely suffering for want of Provisions.

That the Army at this Post and in the vicinity in operating Force consists of 10,400 Continental Troops, and about 400 Militia, besides which is a Regiment of Continental Troops of about 500 at Rhode Island, left there for the assistance of our Allies, against any attempt of the enemy that way, and two Connecticut State Regiments amounting to 800 at North Castle.

That the times of Service for which the Levies are Engaged will expire the first of January, which, if not replaced, allowing for the usual Casualties, will reduce the Continental Army to less than 6,000 men.

That since the state(ment) to the Council above Referred to, the Enemy have brought a detachment of about 3,000 men from Charles Town to New York, which makes the present operating Force in this Quarter between Ten and Eleven Thousand men.

That the Enemies Force now in the Southern States has not been

lately ascertained by any distinct accounts, but the General supposes it cannot be less than 7,000 (of which about 2,000 are at Savannah) in this estimate the Diminution by the Casualties of the Climate, is supposed to be equal to the increase of Force derived from the Disaffected.

That added to the loss of Charles Town and its Garrison accounts of a recent misfortune are just arrived from Major-General Gates, giving advice of a general action which happened on the 16th of August near Campden, in which the army under his Command met with a total defeat, and in all probability the whole of the Continental Troops, and a considerable part of the Militia would be cut off.

That the State of Virginia has been some time exerting itself to raise a Body of 3,000 Troops to serve till the end of December, 1781, but how far it has succeeded is not known.

That Maryland has Resolved to raise 2,000 Men of which a sufficient number to compose one Battalion was to have come to this army. The remainder to recruit the Maryland line—but in consequence of the late advices, an order has been sent to march the whole Southward.

That the Enemies Force in Canada, Halifax, St. Augustine, and at Penobscot, remains much the same as stated in the preceding Council.

That there is still reason to believe the Court of France will prosecute its original intention of giving effectual succor to this Country, as soon as circumstances will permit; and it is hoped the second Division will certainly arrive in the course of the fall.

That a Fleet greatly superior to that of the Enemy in the West Indies, and a formidable land Force had sailed sometime since from Martinique to make a combined attack upon the Island of Jamaica, that there is a possibility of a reinforcement from this quarter also, to the Fleet of our Ally at Rhode Island.

The Commander-in-Chief having thus given the Council a full view of our present Situation and future prospects, requests the Opinion of each Member, in writing, what plan it will be advisable to pursue, to what objects Our Attention ought to be directed in the cource of this fall and winter, taking into consideration the alternative of having or not having a Naval Superiority, whether any Offensive operations can be immediately undertaken and against what Point, what ought to be our immediate Preparations and dispositions, particularly whether we can afford or ought to send any Reinforcements from this Army to the Southern States, and to what amount. The General requests to be favored with these opinions by the 10th instant at farthest.

André also carried this pass in Arnold's handwriting:

HEADQUARTERS ROBINSON'S HOUSE,
Sept. 22d, 1780.

Permit Mr. John Anderson to pass the Guards to the White Plains, or below if he Chuses. He being on Public Business by my Direction.

B. ARNOLD, *M. Gen'l.*

Smith represented to André that it would be impossible, at least very difficult, for him to attempt to reach the *Vulture*, and insisted that the best way for him to reach New York was by land. André was practically forced to disguise himself as a civilian, which he had no intention of doing when he came ashore. Late in the afternoon, armed with the pass from Arnold and accompanied by Smith,[a] André crossed the river at Kings Ferry[b] and passed the night at the village of Crompound, which is about 6 miles from Verplancks Point. On the 23d, having nearly reached the Croton River, the travelers parted, Smith going to Fishkill, leaving André to proceed alone to New York. When a short distance from Tarrytown, André was halted by three Americans, admitted that he was a British officer, and upon being searched the incriminating papers were found, whereupon his captors escorted him to the American advanced post at North Castle, which was commanded by Colonel Jameson.

The service these men[c] did to the struggling colonies can not be overestimated. André had passed through the American lines, and also through that part of the neutral territory usually infested by American partisans—he had good reason to believe himself free. He carried mature plans for the fall of West Point, and was awaited eagerly in New York, where Clinton's troops were already embarked on Rodney's vessels, ready for a quick move up the Hudson.

There was another contingency which may have been left out of the original plot—Washington was on his way to West Point from Hartford, and the capture of West Point might involve the capture of the Commander-in-Chief, and never was

[a] Smith was accompanied by a negro servant. These two, as well as André traveled on horseback, André riding a Government horse which had been furnished by Arnold. Smith and his servant turned back after the former had breakfasted with André, about 2½ miles north of Pines Bridge.

[b] It is about 3 miles from from Smith's house to Kings Ferry. The west landing of this ferry is in a cove, a short distance north of Stoney Point. The eastern landing is nearly a mile southeast of the extremity of Verplancks Point. Kings Ferry was of very great importance to the Americans in the Revolution. It was the ferrying place for the army, being a link in the line of communication between the New England colonies and the South.

[c] They were John Paulding, Isaac Van Wert, and David Williams. The State of New York gave each a farm and Congress gave each a yearly pension of $200, and a medal was caused to be struck There is a monument to them at Tarrytown. It is said that André offered his captors 10,000 guineas for his liberty. That sum was larger than the amount Arnold received from the British. It has been stated that while the Army was encamped at Verplanck's Point Washington invited the three captors to dine with him, and took the occasion to present to them the silver medals awarded by Congress, and gave each a sword and pair of pistols, telling them that they "might expect to be hunted like partridges."—See *Abbatt's The Crisis of the Revolution.*

a man's personality so necessary to an undertaking as was that of Washington's to the success of the American Revolution."

In the meantime Arnold had returned to his headquarters and was awaiting events, and had it not been for an error of judgment on the part of Lieutenant-Colonel Jameson, to whom André and his papers had been turned over by André's captors, Arnold would not have had an opportunity to escape. Jameson sent the papers to Washington by a messenger who was instructed to try to meet Washington on the road from Hartford, but André was sent under guard to West Point, with a note[b] to Arnold giving an account of the affair. After this had been done, Major Tallmadge of Jameson's command, returned to North Castle from detached duty, and, learning what had been done, Tallmadge prevailed upon Jameson to send after André and his guard and bring them back to North Castle. André and escort, when only a few miles from Arnold's headquarters, were overtaken and brought back, but the letter to Arnold was allowed to go forward. This served as a warning to Arnold and gave him an opportunity to escape.

On the 24th, André was taken to Lower Salem, where he made known his identity to the officer commanding the guard placed over him and also wrote a letter[c] to Washington

[a] Hamilton, writing to Laurens, September, 1780, stated: "* * * There was some color for imagining it was a part of the plan to betray the General into the hands of the enemy. Arnold was very anxious to ascertain from him the precise day of his return; and the enemy's movements seem to have corresponded to this point. * * * Arnold, it is true, had so dispersed the garrison as to have made a defense difficult, but not impracticable; and the acquisition of West Point was of such magnitude to the enemy that it would have been unwise to connect it with any other object, however great, which might make the obtaining of it precarious. * * *"

[b] Jameson wrote Arnold:

"NORTH CASTLE, 23*d Sept*.

"SIR: I have sent Lieutenant Allen, with a certain John Anderson, taken going into New York. He had a passport signed in your name. He had a parcel of papers taken from under his stockings which I think are of a very dangerous tendency. The papers I have sent to General Washington. They contained [describing them] * * *."

[c] *André to Washington.*

SALEM, *the 24th Sept*., 1780

SIR: What I have as yet said concerning myself was in the justifiable attempt to be extricated: I am too little accustomed to duplicity to have succeeded.

I beg your excellency will be persuaded that no alternation in the temper of my mind, or apprehension for my safety, induces me to take the step of addressing you, but that it is to rescue myself from an imputation of having assumed a mean character for treacherous purposes of self-interest, a conduct incompatible with the principles that actuate me, as well as with my condition in life. It is to vindicate my fame that I speak and not to solicit security. The Person in your possession is Major John André, Adjutant General to the British Army.

The influence of one commander in the army of his adversary is an avantage taken in war. A correspondence for this purpose I held; as confidential, in the present instance, with His Excellency Sir Henry Clinton.

To favor it I agree to meet upon ground not within posts of either army a person who was to give

relating the circumstances which had brought him within the American lines and into American hands.

Washington did not return from Hartford by the same route he had taken in going there, but returned by way of Fishkill, which he reached on the afternoon of September 24. The messenger, carrying the papers taken from André, sought Washington by another road.[a] Washington's intention was to press on that evening and pass the night at Arnold's headquarters, but, meeting the French envoy, he concluded to pass the night at Fishkill. At the table where he dined sat Joshua Hett Smith, who had left André well on the way to New York. Washington started early on the 25th for the "Robinson house," and, when opposite West Point, he dispatched two of his aids to announce his arrival, while he ascended the ridge east of Garrisons to examine the north and south redoubts. The two aids were seated at breakfast with Arnold when he was handed the note from Jameson which announced André's capture. Arnold excused himself, sent for the cockswain of his barge and a horse, and then

me intelligence. I came up in the *Vulture* M. of War for this effect and was fetched by a boat from the shore to the beach; being there I was told that the approach of day would prevent my return and that I must be concealed until the next night. I was in my Regimentals and had fairly risked my person.

Against my stipulation my intention and without my knowledge before hand I was conducted within one of your posts. Your Excellency may conceive my sensation on this occasion and will imagine how much more I must have been affected, by a refusal to reconduct me back the next night as I had been brought. Thus become prisoner I had to concert my excape. I quitted my uniform and was passed another way in the night without the American posts to neutral ground, and informed I was beyond all armed parties and left to press for New York. I was taken at Tarry Town by some volunteers. Thus as I have had the honour to relate was I betrayed (being Adjutant General of the B. Army) into the vile condition of an enemy in disguise within your posts.

Having avowed myself a British Officer, I have nothing to reveal but what relates to myself which is true on the honour of an officer and a Gentleman. The requst I have to make to your Excellency and I am conscious I address myself well, is that in any rigor policy may dictate, a decency of conduct towards me [may] mark that tho' unfortunate I am branded with nothing dishonorable as no motive could be mine but the service of my King and as I was involuntarily an imposter.

Another request is, that I may be permitted to write an open letter to Sir Henry Clinton, and another to a friend, for cloaths and linnen.

I take the liberty to mention the condition of some gentlemen of Charlestown who being either on parole or under protection were ingaged in a Conspiracy against us. Tho' their situation is not exactly similar, they are objects who may be set in exchange for me, or are persons whom the treatment I receive might affect.

It is not less Sir in a confidence in the generosity of your mind, than on account of your superior station that I have chosen to importune you with this letter. I have the honor to be with great respect, Sir, your Excellency's most obedient and most humble servant,

JOHN ANDRE, *Adj Genl*

His Excy. Gen. WASHINGTON.

[a] Jameson's messenger went almost to Danbury before he learned that Washington had left Hartford for Fishkill. He then returned to Jameson, who sent him to Washington with André's letter, Jameson's original letter to Washington, and the Arnold papers. This courier arrived at the "Robinson house" at about 2 p. m., September 25. Washington received the papers about 4 p. m.

went upstairs, followed by his wife, whom he informed of his danger. He returned to his guests and told them that it was necessary for him to cross to West Point to prepare for the reception of General Washington. Arnold then mounted his horse and, followed by his cockswain, dashed down to the landing place. The crew was hastily assembled and the barge sped down the river to the *Vulture*.

Arnold, seated in his boat, with a brace of primed pistols, and holding his cane to which was attached a handkerchief, urged his men to double exertion, promising them a reward and explaining that he must visit the *Vulture* under a flag of truce and return to Washington, at his headquarters, and consequently time was important. Shortly after Arnold boarded the *Vulture* that vessel got under way for New York, where Arnold collected his price.[a]

Washington finally arrived at the "Robinson house," and, after a hasty breakfast, he crossed to West Point, accompanied by all of his staff save Hamilton. Upon arriving at West Point, Washington was surprised not to be met with the customary salute and at not finding Arnold there. After an inspection of the post he returned to the east side of the river, where he was met by Hamilton near the "Robinson house," who handed to him the papers brought by the messenger, who had arrived while Washington was at West Point.

Prompt action was at once taken to secure the safety of West Point. That night the Army was notified of the impending danger, and troops were made ready to march on a moment's notice to West Point, if needed.

Washington's first thought was for the security of West Point. Colonel Lamb was ordered to take command of Stony Point and Verplanck's Point. Greene, commanding the left wing of the Army, which was at Tappan, was ordered to march to West Point. At 3 a. m., September 26, this order reached him, and the regimental drums began sounding the alarm to the sleeping Army. Two Pennsylvania brigades and the Sixth Connecticut Regiment marched at once.

[a] Arnold was made a brigadier-general in the British service and according to Bancroft received £6,315 in cash. After conducting forays in Connecticut and Virginia he went to England at the close of the war where he died in 1801.

Washington immediately sent these directions to Colonel Wade,[a] who was the senior officer left at West Point:

SIR: General Arnold has gone to the Enemy. I have just received a line from him, inclosing one to Mrs. Arnold, dated on board the *Vulture*. From this circumstance and Colonel Lamb's being detached on some business the command of the garrison for the present devolves upon you. I request you will be as vigilant as possible, and as the enemy may have it in contemplation to attempt some enterprise, even to-night, against these posts, I wish you to make, immediately after receipt of this, the best disposition you can of your force, so as to have a proportion of men in each work on the West Side of the River. You will see or hear from me further to-morrow.

I am, sir, your most obedient servant,

G. WASHINGTON.

On September 26 Washington wrote to Wade:

SIR: Under the present situation of affairs, I think it necessary that the respective works of West Point and its dependencies be supplied with provisions and water. You will therefore be pleased to have a proper quantity distributed to each of them without any loss of time.

I am, sir, etc.

To this letter Wade replied that about all the available provision consisted of some pickled fish, but added that the water supply was abundant.[b]

Joshua Hett Smith[c] was arrested, and on the 26th both he and André were taken to West Point,[d] where they were confined until the morning of the 28th, when both were taken to Tappan, where the main body of the Army was encamped.

André was not tried by a court-martial, but Washington convened a board of officers to investigate the case and to give an opinion as to André's status.

[a] "A singular fact in connection with his [Wade's] West Point experience is his statement of a conversation with one of Arnold's aids—apparently Franks—shortly before the 23d. He was returning to the boat, after dining with Arnold. The major, accompanying him, said impressively: 'There is something going on here that I do not understand and cannot find out. I say this to put you on your guard at the Fort [West Point].' 'I fear there is something brewing about us, and all I can say is, look out.' With this he abruptly left Wade."—*Abbatt in The Crisis of the Revolution.*

[b] Abbatt's The Crisis of the Revolution.

[c] Smith was tried by a court-martial, which did not convict him. He was then conveyed to Goshen and turned over to the civil authorities. He escaped from jail at this point and made his way in disguise to New York. At the close of hostilities he went to England; but afterwards returned and died in New York in 1818.—*Field Book of the Revolution, Lossing.*

[d] Abbatt in The Crisis of the Revolution states positively that while at West Point André was confined in Fort Putnam, Abbatt having obtained this information from a grandson of Capt. Ebenezer Smith, Thirteenth Massachusetts, who had charge of André at that time.

The board met September 29, and completed its labors the same day. Upon receipt by him of the proceedings of this board, Washington issued the following order:

"HEADQUARTERS, *September 30, 1780.*

"The Commander in Chief approves of the opinion of the Board of General Officers respecting Major André, and orders that the execution of Major André take place to-morrow, at 5 o'clock p. m."

To conclude certain negotiations in André's behalf the execution was postponed until the next day. Major André was hanged in the early afternoon of October 2, 1780.[a] So ended this enterprise for the betrayal of West Point.

On September 27 the command at West Point was given to McDougall, pending the arrival of Saint Clair, who assumed command of West Point and its dependencies on the 30th. Saint Clair's command consisted of the Pennsylvania division, Meigs's and Livingston's Continental regiments, and some militia from Massachusetts and New Hampshire. On October 6, General Greene, who had applied for the command, was ordered to relieve Saint Clair. Greene brought with him three regiments. Saint Clair, who was directed to rejoin the Army, took with him the Pennsylvania division and Meigs's regiment.

Hamilton said, writing of André, "never, perhaps, did any man suffer death with more justice or deserve it less."

On October 6, Washington wrote to Greene:

* * * It is, I observed to you on that occasion, a matter of great question with me, whether West Point will not become the headquarters of the Army when we go into cantonments for the winter. I am very apprehensive that the diminution of our present force and the little prospect of recruiting the Army in season, the importance of West Point,

[a] On the day of André's execution Hamilton wrote to Miss Schuyler

"I urged a compliance with André's request to be shot and I do not think it would have had an ill effect; but some people are only sensible to motives of policy, and sometimes, from a narrow disposition, mistake it. When André's tale comes to be told, and present resentment is over, the refusing him the privilege of choosing the manner of his death will be branded with too much obstinacy.

"It was proposed to me to suggest to him the idea of an exchange for Arnold, but I knew I should have forfeited his esteem by doing it, and therefore declined it. As a man of honor he could not but reject it, and I would not for the world have proposed to him a thing which must have placed me in the unamiable light of supposing him capable of meanness, or of not feeling myself the impropriety of the measure. I confess to you I had the weakness to value the esteem of a dying man because I reverenced his merit."

and economical motives will compel us to concentrate our forces on the North River, keeping light parties only on our flanks.

If, under this information, you should incline to take the immediate command of the detachment, which is about to march to West Point, and the general direction of matters on the east side of Hudson's River, it will be quite agreeable to me that you should do so. But candor has led me to a declaration of the uncertainty of that post's being long removed from my immediate command. * * *

The internal affairs at West Point at this time are brought to light by extracts from several letters written by Greene.

On October 9 he wrote to Governor Clinton:

I am ordered here by the Commander in Chief, with four brigades, to garrison this place. I got into garrison late last evening, and am sorry to find a place of such importance is in such a miserable condition. The condition of the works and the knowledge the enemy has of them from Arnold's late shameful and treasonable conduct makes it necessary that every exertion should be made to complete them, and I have it in charge from the Commander in Chief to leave nothing unattempted to accomplish it. Though the force I now command is but small, though the works are in such a bad condition, yet if the garrison is but furnished with provisions, wood, and forage I have nothing to fear from the enemy, being persuaded the discipline and bravery of the troops will make up for the smallness of their numbers and the defects in the fortifications. The garrison is now upon half allowance of flour and altogether unfurnished with wood and but a trifling quantity of forage. * * *

Writing to Knox on October 11 he complains: "* * * Everything here is in a bad state. But the worst of all is we have not a mouthful of flour in garrison, except the little lodged in the forts."

A few days later Greene stated that the number of the garrison was three thousand men and would perhaps continue so until the 1st of January, when that number would be reduced to a little less than two thousand. About this time he wrote to Washington:

* * * The works of the garrison are very incomplete; indeed very little has been done to them this campaign. On my arrival I made the following disposition of the troops—New Jersey brigade to man the redoubts Nos, 1, 2, 3, and 4. New York brigade to man Fort Putnam, Webb's and Wyllys' redoubts. Stark's brigade Fort Clinton. Two regiments of the New Hampshire brigade are on Constitution Island and two regiments are on the east side of the river on the table of ground at the foot of the mountains on which the north and south

redoubts are situated. On all alarms the troops are to man the respective works assigned to them. * * * We have been out of flour most part of the time since I have been here, and the troops have suffered exceedingly. * * *

In regard to the arrangement of the works, Greene at this time wrote:

I have been round and viewed the works with Colonel Gouvion, and am of opinion that a blockhouse is absolutely necessary to keep possession of the ground between the redoubts Nos. 3 and 4, and have given orders for the construction accordingly. If the enemy should possess that ground, I am persuaded they could soon dispossess us of the redoubts Nos. 3 and 4. Number 1 and 2 would become useless; and artillery be immediately opened upon Fort Putnam and all the lower works, which could not fail of reducing them.

Thacher, who was then at West Point, writes under date of October 20: "A scarcity of provisions is again complained of in camp."

Greene left West Point on October 19 to take command of the Southern army; he was succeeded in command at West Point by Heath.

On November 28 the Army went into winter quarters. The general headquarters were at New Windsor. The Jersey troops returned to their State, four Massachusetts brigades were added to the West Point garrison, while two Connecticut brigades were stationed on Constitution Island and on the east side of the river.

A very good description of some of the works at West Point is given by Marquis Chastellux, who visited the post about this time:

The first fort we met with above West Point, on the declivity of the mountain, is called Fort Putnam, from the general of that name. It is placed on a rock, very steep on every side. The ramparts were at first constructed with trunks of trees; they are rebuilt with stone, and are not quite finished. There is a powder magazine, bombproof, a large cistern, and souterrains for the garrison. Above this fort, and when we reach the loftiest summit, there are three strong redoubts, lined with cannon, at three different eminences, each of which would require a formal siege. The day being nearly spent, I contented myself with judging by the eye of the very intelligent manner in which they are calculated for mutual protection. Fort Wyllis, whither General Heath conducted me, was near and more accessible. Though it be placed lower

than Fort Putnam, it still commands the river to the south. It is a large pentagonal redoubt, built of huge trunks of trees. It is picketed and lined with artillery.

Under the fire of this redoubt and lower down is a battery of cannon to range more obliquely the course of the river. This battery is not closed at the gorge, so that the enemy may take but never keep it, which leads me to remark that this is the best method in all field fortifications. Batteries placed in works have two inconveniences: The first is, that if these works be ever so little elevated they do not graze sufficiently; and the second, that the enemey may at once attack the redoubt and the battery, whereas, the latter, being exterior and protected by the redoubt, must be first attacked, in which case it is supported by troops who have nothing to fear for themselves and whose fire is commonly better directed and does more execution. A battery yet lower and nearer to the river (Fort Meigs) completes the security of the southern part.

In returning to West Point we saw a redoubt that is suffered to go to ruin, as being useless, which in fact it is. It was night when we got home, but what I had to observe did not require daylight. It is a vast souterrain formed within the fort of West Point (Fort Clinton), where not only the powder and ammunition necessary for this post are kept in reserve, but the deposit of the whole army.

These magazines completely filled, the numerous artillery one sees in these different fortresses, the prodigious labour necessary to transport and pile up on steep rocks, huge trunks of trees, and enormous hewn stones, impress the mind with an idea of the Americans very different from that which the English ministry have laboured to give to Parliament. * * *[a]

Thacher, a surgeon in Jackson's Massachusetts regiment, writing under date of January 3, 1781, said:

Our brigade took possession of our huts for the winter, in the woods about two miles in the rear of the works at West Point. Our situation is singularly romantic, on a highly elevated spot, surrounded by mountains and craggy rocks of a prodigious size, lofty, broken cliffs, and the banks of the beautiful meandering Hudson, affording a view of the country for many miles in all directions. We have now no longer reason to complain of our accommodations; the huts are warm and comfortable, wood in abundance at our doors, and a tolerable supply of provisions. Our only complaint is want of money.

On January 22, 1781, Washington, Lafayette, and a number of French gentlemen visited West Point, and on the same day Howe, with 500 troops, was detailed from the garrison and ordered to the Jerseys to quell a rising at Pompton, which was done by executing two of the ringleaders.

[a] Boynton's "History of West Point

The Board of War, in a letter dated June 13, 1781, to the President of Congress stated that the Commander in Chief had called for the whole of the Invalid Corps to form part of the garrison at West Point. This peculiar corps was one which was organized in pursuance of the following act of Congress of June 20, 1777:

Resolved—That a Corps of Invalids be formed consisting of eight Companies, each Company to have one Captain, two Lieutenants, two Ensigns, Five Sergeants, six Corporals, two Drummers, two fifers and one hundred men. This Corps to be employed, in Garrison and for Guards, in Cities and other Places, where Magazines, or arsenals are placed; as also to serve as a military School for young gentlemen, previous to their being appointed to marching Regiments, for which purpose all the Subaltern Officers, when off Duty, shall be obliged to attend a Mathematical School, appointed for the purpose to learn Geometry, Arithmetic, vulgar and decimal fractions and the extraction of Roots. And that the Officers of this Corps, shall be obliged to contribute, one day's pay in every Month, and stoppages shall be made of it, accordingly for the purpose of purchasing a Regimental Library of the most approved Authors on Tactics and the Petíte Guerre.

That some Officers from the Corps be constantly employed in the Recruiting Service in the Neighborhood of the places they shall be stationed in; that all recruits so made, shall be brought into the Corps, and drilled, and afterwards draughted into other Regiments as occasion shall require.

This was an attempt of Congress to combine the conservation of military knowledge with the pensioning of officers and men who had become wounded or otherwise incapacitated for service in the field. This Corps was organized in and around Philadelphia, of which city the colonel of the Corps of Invalids, Lewis Nicola, was "Town Major" in 1779. In compliance with Washington's request, Nicola's command was brought to West Point[a] in the summer of

[a] A letter from Colonel Lamb, Chief of Artillery at West Point, alludes to the condition of this organization

"WEST POINT *Aug. 1st, 81.*

* * * Col. Nichols (Nicola), with his invalids, lately arrived here from Philadelphia. A number of these, unfortunate men, are capable of doing no duty but eating their rations. In their dress, and other circumstances, you may see, however, visible characters of the gratitude of the country, to the brave men who have bled in its cause. It is no doubt a piece of refined policy to bring these maimed men from a distant post, to present them to our soldiery, who have sagacity enough to infer, that after losing eyes, hands and feet, in the public service that their patriotic sufferings will be amply rewarded, by being put in possession of the honors conferred on the invalid corps. They will, I understand, be parcelled out to Fishkill, Fishkill Landing, Newburgh, and New Windsor, where some of them may be employed in easy duty. * * *"

1781, and stationed there and in the vicinity until the close of the war.[a]

Heath, under date of April 26, 1781, wrote on his Memoirs:

> At this time provisions were growing very scarce at West Point and the prospects daily growing more alarming. The magazines in Forts Clinton, Putnam, and some other of the most important works had reserves of the best provisions, which were not to be touched; that in case the enemy by any sudden movement should invest them and cut off the communication with the country, the garrisons might be enabled to hold out until other troops or the militia of the country could march to the relief of the besieged; but unfortunately the scarcity of provisions had become so great that even these reserves were broken in upon and some of them nearly exhausted.

Heath notified Washington of the straitened circumstances of the troops, and he was ordered by the latter to visit the authorities of the several New England States and call upon them to furnish supplies to the army.

In June, 1781, Washington began his movement which resulted in the surrender of Cornwallis at Yorktown.

Doctor Thacher at West Point on June 20 wrote: "It is directed in general orders that the whole army at this place march and encamp at Peekskill, leaving the invalids and a small party to garrison West Point." During the movement against Yorktown, Heath, who was left in command of the Northern Department, was given specific instructions by Washington relative to the defense of West Point.[b]

The French having joined Washington, an attack was

[a] Lincoln writing from the War Office, October 29th, 1782, to the President of Congress stated:—"I beg leave to lay before Congress the state of the Invalid Regiment, that if on inquiry it should be found to be rather a source of expense than answering the benevolent purposes of its original constitution and that little or no services may be expected from it, either in the field or garrison, that it may be reduced and really meritorious and debilitated officers and men may be provided for in a manner more consonent to their wishes, conducive to their happiness, and in a way more honorary and less expensive to the United States. * * * The miserable state in which the Regiment now is, the very great expense which attends its being kept up, and the very little service received from it, has made it my duty to make this representation to Congress." The descriptive roll which accompanied this communication showed that the organization at that time consisted of: 20 officers, 1 surgeon, 1 mate and 362 enlisted men, nearly all of whom were shown to be truly invalids.

On May 1, 1783 a Congressional Committee submitted this resolution. *Resolved* that the Corps of Invalids be reduced, etc." but the organization was not disbanded for some time.

[b] Washington notified Heath of his contemplated move against Cornwallis, and on August 18 sent him these instructions:

"You are to take command of all the troops remaining in this department, consisting of the two regiments of New Hampshire, ten of Massachusetts, and five of Connecticut infantry, the corps of invalids, Sheldon's legion, the Third Regiment of artillery, together with all such State troops and militia as are retained in service of those which have been under my own command.

"The security of West Point and the posts in the Highlands is to be considered as the first object of your attentions. In order to effect this, you will make such dispositions as in your judgment the circumstances shall from time to time require, taking care to have as large a supply of salted pro-

made on July 2 on the works on the northern end of Manhattan Island. This attack served only as a feint. Washington withdrew his command and crossed it to the west bank of the Hudson at Stony Point.

While the allied army was crossing the river, Washington, whose headquarters were located in Joshua Hett Smith's home at Haverstraw,[a] found time to show West Point to Rochambeau.

Aug. 23d * * * M. de Rochambeau was not willing to pass so near West Point as nine miles, without seeing it. He left at eight o'clock in the morning to visit it with General Washington and several officers.[b]

After the fall of Yorktown some of the troops returned to West Point. They left Yorktown on November 4 and reached their destination about December 8, 1781.

The cantonment of some of the Massachusetts troops at West Point was called "New Boston"—this was probably located in the valley at the northern part of the post. The troops at West Point, elated by their last campaign, passed a quiet winter with presumably less suffering than formerly, as fewer complaints were recorded. However, smallpox and putrid fever at times entered the garrison.

Occasionally deserters from the enemy came in at West Point.[c] A duel between two of the officers took place.[d] On April 6 we are told that Washington visited West Point and reviewed the First Massachusetts Brigade; this probably took place on the plain,[e] where such exercises have taken place for more than a century.

visions as possible constantly on hand; to have the fortifications, works, and magazines repaired and perfected as far as may be; to have the garrison at least in all cases kept up to its present strength; to have the minutes, plans, and arrangements for the defense and support of this important post perfectly understood and vigorously executed in case of any attempt against it. * * * The most eligible position for your army, in my opinion, will be above—that is, on the north side—of the Croton, as well for the purpose of supporting the garrison at West Point, annoying the enemy, and covering the country, as for the security and repose of your own troops. * * *"

In September, Heath sent three Massachusetts regiments to reinforce the small garrison then at West Point.

[a] Baker's Itinerary of General Washington.

[b] Diary of Baron Cromot du Bourg.

[c] *Feb. 10, 1782.*—Two deserters came in from Arnold's corps, and also two Hessians. Ten had come in during the course of two or three days.—*Heath's Memoirs.*

[d] *March 21 1782.*—A duel was fought at West Point, between Capt. —— and Lieut ——, when the former was killed and the latter wounded. They fought with pistols at about ten feet distance. The lieutenant absconded.—*Heath's Memoirs.*

[e] Although formerly the West Point plain did not present the level appearance it does to-day, the ground was more undulating, and an old map shows some ponds. There has been a good deal of work done at different times to place the plateau in its present shape.

Washington, writing to Robert Morris on May 17, 1782, stated that West Point had hardly a barrel of salted provisions and could not stand a siege of three days. This year Washington caused a celebration to take place, which surpassed in magnitude and uniqueness anything ever held at West Point. This was to celebrate the birth of the Dauphin of France.[a] This affair took place on May 31, 1782, on which day Washington and a distinguished company came to West Point.[b] All troops in the immediate vicinity of West Point were paraded on both sides of the river. The First and Second Massachusetts brigades were drawn up, with their left at the Washington Valley, center on the slope of Fort Putnam hill, and their right extending to the river. On the opposite shore of the Hudson, the first and second Connecticut brigades were drawn up on the high grounds in rear of Constitution Island, the Tenth Massachusetts in the cleared fields north of where Garrisons now is, and the third Massachusetts on the heights between the north and south redoubts.

The artillery regiment was drawn up on the West Point plain. Washington's Life Guard was drawn up in the colonnade, where he and 500 guests assembled for the banquet. Thirteen toasts were drank, each of which was greeted by a salute of 13 cannon. In the evening the arbor was decorated with lights, fireworks were set off from Redoubt Webb, and the troops on both sides of the river fired 3 rounds in a feu de joie, preceded by 13 guns.

[a] Louis Joseph, son of Louis XVI, born in October, 1781; died in June, 1789.

[b] [illegible] Yesterday was celebrated the birth of the Dauphin of France by a magnificent festival. The edifice under which the company assembled and partook of the entertainment was erected on the plain at West Point. The situation was romantic; and the occasion novel and interesting. Major Villefranche, an ingenious French engineer, has been employed with 1,000 men about ten days, in constructing the curious edifice. It is composed of the simple materials which the common trees in this vicinity afford. It is about 600 feet in length and 30 feet wide, supported by a grand colonnade of 118 pillars, made of the trunks of trees. The covering of the roof consists of boughs, or branches of trees curiously interwoven, and the same materials form the walls, leaving the ends entirely open. On the inside, every pillar was encircled with muskets and bayonets bound round in a fanciful and handsome manner, and the whole interior was decorated with evergreens, with American and French military colors, and a variety of emblems and devices, all adjusted in such style as to beautify the whole interior of the fabric. This superb structure, in symmetry of proportion, neatness of workmanship, and elegance of arrangement, has seldom perhaps been surpassed on any temporary occasion; it affected the spectators with admiration and pleasure, and reflects much credit on the taste and ability of Major Villefranche. Several appropriate mottoes decorated the grand edifice, pronouncing benedictions on the Dauphin and happiness to the two allied nations. The whole army was paraded on the contiguous hills on both sides of the river, forming a circle of several miles in open view of the public edifice, and at the given signal of firing three cannon, the regimental officers all left their commands and repaired to the building to partake of the entertainment which had been prepared by order of the Commander-in-Chief [illegible] *Thacher's Military Journal*

"Afterwards," we are told, "His Excellency General Washington carried down a dance of 20 couple in the arbor on the green grass."

In August, 1782, Major-General Knox was appointed to the command of West Point and its dependencies, relieving Heath. Knox retained this command until he was made Secretary of War in 1785.

Even at this early day West Point attracted distinguished visitors, and for the entertainment of such Washington, in June, 1783, urged that Knox, while commanding there, be given an extra allowance of money.[a]

When Knox assumed command of West Point the garrison consisted of the artillery, sappers and miners, Tenth Massachusetts Regiment, and the Corps of Invalids. A number of the troops previously comprising the garrison were ordered to take part in the mobilization, which Washington ordered on August 29, to take place in the vicinity of Peekskill.[b]

The winter came and went without incident. On April 18 a schooner from Nantucket, laden with merchandise, arrived at Newburgh. This was the first American vessel to come up the Hudson since the British took possession of New York City in 1776.

The end had now arrived. Washington announced the

[a] Letter from Washington to Lincoln, Secretary of War

"HEADQUARTERS, *June 13th, 1783*

DEAR SIR: * * * On the other hand, although extra allowances have been discontinued to Officers commanding in separate Departments, yet General Knox's situation has been very peculiar for the time he has been in the command of West Point, particularly last year, while the French Army was in the neighbourhood, curiosity led many of the most respectable officers to visit that Post, which *to a Gentleman, possessed, as General Knox is, of great Hospitality, Politeness and Liberality*, led him into unavoidably great expenses, beyond what any other situation would have subjected him to. Independent of this particular reason, West Point being a Post of great importance, and much famed for its peculiarity of situation and circumstances, is at all times subject to much company, many of whom are so respectable as to claim the attention of the Commandant. In this view of his situation, I think the request of General Knox is extremely reasonable and just. * * * * *

"G. WASHINGTON"

—*Vol. VII, Washington Letters MSS. State Department Library.*

[b] The enemy not giving this army an opportunity to become engaged there was little military activity. Washington reviewed the French army and Rochambeau the American; there were other reviews and some maneuvers. In October the organizations were distributed to various localities. The left wing under Heath crossed the river at West Point and took station for the winter at New Windsor. The troops crossed the Hudson in boats to West Point, the whole being crossed by half past 12 o'clock. In the afternoon the troops took up their line of march, and ascended Butter-Hill (Storm King), a tedious march, and halted and passed the night on the northern descent of the hill, in the open field.

28th.—At 7 o'clock a. m. the troops resumed their march from Butter-Hill, and reached the ground upon which they were to build their huts, in New Windsor, at about half past 10 o'clock a. m. Upon this ground, and its vicinity, the army passed the ensuing winter. The cantonment, for its nature and kind, was regular and beautiful. * * * *Heath's Memoirs.*

cessation of hostilities to the Army by an order which he directed to be read at the evening parade on April 19 at the head of every regiment and corps of the Army.

On June 20 Washington issued this order:

The troops of this cantonment (New Windsor) will march on Monday morning, 5 o'clock, by the left. The senior brigadier of the Massachusetts Line will conduct the column over Butter-Hill (Storm King) to West Point. * * * These corps, with the troops at West Point, will compose the garrisons of that post and its dependencies; Major-General Knox will be pleased to expedite in the best manner he is able the building of an arsenal and magazines, agreeably to the instructions he hath received from the Secretary of War. As soon as the troops are collected at West Point an accurate inspection is to take place, in consequence of which all noncommissioned officers and privates who are incapable of service, except in the Corps of Invalids, are to be discharged, and the names of all the men whose time of service will expire within a month are also to be reported to headquarters.

It was at first intended to celebrate at West Point the definitive treaty between the United States and Great Britain, but this was afterwards done at New York.[a]

On November 25 the final act of the Revolution took place—the evacuation of New York by the British, who were relieved by an American force commanded by Knox. Troops were brought down from West Point to assist in this occupation.[b]

Knox returned to West Point and busied himself with mustering out troops[c] and putting the post in shape. A large

[a] On August 27th, 1783, Pickering, the Quartermaster-General, wrote: "I missed the General; he went down the river. He will not return again, unless to celebrate the definitive treaty at West Point, when he will invite *Messieurs le Congres* to accompany him. There is a mighty colonnade erecting, near two hundred feet long and eighty broad. Twenty thousand lamps are made, and the posts erected to display the fireworks extend a hundred and fifty or two hundred yards. * * *"

On August 29 Pickering again wrote respecting this celebration: "* * * Great preparations have been and are making at West Point to celebrate that event. * * * But this will be an occasion so extraordinary, and the exhibition so splendid, etc."

[b] On November 16 Pickering wrote to a friend:—"I have the pleasure of announcing to you that Sir Guy Carleton has fixed on the 21st instant for the evacuation of his outposts, and on the 22nd for the complete evacuation of the city of New York and its dependencies. In consequence, two companies of artillery commanded by Major Bowman (Bauman), with four six-pounders (all trophies, engraved with the times and places of their capture from the enemy), the light infantry, and the First and Fourth Massachusetts Regiments, have this day marched for the environs of Kingsbridge, to be prepared to take possession as the British relinquish the posts. The whole detachment will amount to eight hundred or a thousand men. * * * West Point and dependencies will be left with one regiment. * * *"

[c] On January 4, 1784 a return from West Point showed that Knox's command consisted of

	Field & Staff	Capt.	Lts. & ensigns	Men
Gen. Jackson's Regt.	5	9	18	564
Corps of Invalids	....	4	4	30
Artillery	2	2	7	125

quantity of revolutionary arms and ammunition was collected and stored at West Point.[a] Among other matters to demand Knox's attention was the case of 115 Canadians who had espoused the American cause and who, being refugees from their home, were subsisted at West Point.[b]

Knox was succeeded by Major Fleming, who commanded the arsenal with the rank of ordnance and military storekeeper. The Corps of Artillerists and Engineers, consisting of four battalions, which were raised in pursuance of the act of Congress of May 9, 1794, were stationed at West Point under the command of Lieutenant-Colonel Rochefontaine. In 1794 work was begun on repairing Fort Putnam, but in 1796 Liancourt, who visited West Point, stated that $35,000 had been uselessly expended in repairing Fort Putnam, as Congress would not appropriate $45,000 more, which would be necessary to complete the repairs. He also stated that the four battalions of artillerists and engineers were composed of about 250 men each, mostly foreigners, and that there were but 10 officers present representing all nations. But a new régime was about to take place, which will be discussed in another chapter.

During the Revolution there was no fighting at West Point—the garrison did its fighting elsewhere. The enemy might be kept away, but not death. The present post cemetery dates from 1817; only a few Revolutionary officers are known to rest there.[c] Excavations made near the academic

[a] The ordnance return from West Point on December 28 1783 showed that the garrison possessed fit for service:—

"53 Brass Cannon of different calibres
97 Iron ditto
51 Mortars and Howitzers
201 Total."

[b] "*Return of Canadian Refugees who draw provisions from the public* West Point January 1, 1784

	Major	Captains	Lieutenants	Citizens	Women	Children
Total	1	3	5	50	23	33

Another person who drew supplies from West Point for several years after the war was "Molly Pitcher" who was quartered at Swimstown, now Highland Falls. She distinguished herself when the British assaulted Fort Clinton as well as at the battle of Monmouth. She is supposed to have died in 1789.

[c] There yet may be deciphered on a crumbling stone in the post cemetery the name of Ensign Trant, of the Ninth Massachusetts Regiment, who was buried at West Point November 10, 1782, and whose remains "were followed to the grave by his excellency General Washington and a very respectable procession." (Thacher.) His remains were probably removed to the present cemetery when it was instituted.

building, gymnasium, or mess hall not infrequently uncover the remains of Revolutionary soldiers. Their names are unknown, and no monument marks the resting place of these soldiers who kept their vigil in these Highlands and who first raised the American flag over West Point, the oldest United States military post over which it has continuously flown.

ORIGINS OF THE UNITED STATES MILITARY ACADEMY, 1777-1802.

BY EDWARD S. HOLDEN, M. A., Sc. D., LL. D.,

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THE first English emigrants to America brought the martial virtues of their forefathers with them. As early as 1638 there was formed in the province of Massachusetts Bay "the Military Company of Boston," which became "the Artillery Company" in 1657. On the eve of the Revolution the company possessed certain brass 3-pounders that were active during the war. A British artillery command, on its way to Quebec, spent the winter of 1766 in Boston, and its officers—some of them probably from the Royal Military Academy at Woolwich (founded 1741)—trained their American cousins in the theory and practice of gunnery. At the battles around Boston the lessons were utilized, especially by Henry Knox, once an active member of the Artillery Company, who laid out and armed the works besieging the city, and who was appointed, on the recommendation of Washington, to be colonel and Chief of Artillery on the 8th of November, 1775.

On the 16th of May, 1776, Knox wrote a letter to John Adams, a member of the Board of War, in regard to establishing academies for educating young gentlemen in every branch of the military art, to which Adams replied on June 2: "I am fully of your sentiments," Adams writes, "that we ought to lay foundations and begin institutions * * * for promoting every art, manufacture, and science necessary for the support of an independent State." The disastrous engagements around New York occurred in August, and the Army was withdrawn to Harlem Heights, the artillery company, commanded by Alexander Hamilton (now the Eighth Light Battery, U. S. Army), covering the retreat. Knox

wrote to his wife on September 5: "It is Misfortunes that must raise us to the character of a great people. *We must have a standing Army.* The militia get sick, or think themselves so, and run home."

The lessons of war began to be impressed on Congress, on the country and on the army, the imperative necessity for trained officers being one of them. On the 15th of September Adams again wrote to Knox: "I wish we had a military academy and should be obliged to you for a plan of such an institution." On the 23d of the same month Knox wrote to his brother: "We ought to have academies in which the whole theory of the art of war shall be taught." On the 25th Knox again wrote to Adams: "Military academies must be instituted at any expense. We are fighting against a people well acquainted with the theory and practice of war, brave by discipline and habit." Knox's "Hints to Congressional Committee now in Camp, Headquarters, Harlem Heights, September 27, 1776" contained the sentence which follows: "*As officers can never act with confidence until they are Masters of their profession, an Academy established on a liberal plan would be of the utmost service to America, where the whole theory and practice of Fortifications and gunnery should be taught; to be nearly on the same plan as that of Woolwich making allowance for the difference of circumstances.*" He also recommended the establishment of a "Continental Laboratory."

Knox, therefore, was the first to propose a military academy of the type of Woolwich—an academy like our own. The visiting committee listened to the advice of other officers in the New York camps also. They reported (October 3) in favor of establishing a military academy. A different plan was, however, adopted, namely, to educate young officers while serving with their regiments. It is not yet known to whom this latter suggestion was originally due. It was carried out during the years 1777 to 1783 under the direction of Col. Lewis Nicola, a French officer of distinction and learning, who has gained a bad name in American history because he proposed that General Washington should assume the

functions of king. On the 1st of October, 1776, the Board of War, on the motion of John Adams, resolved "that a committee of five be appointed to prepare and bring in a plan of *a military academy at the Army*," and on the same day Adams wrote to Knox to notify him that the committee was appointed and to ask for his advice upon the new project. What this project was appears in the Journals of Congress June 20, 1777:

> *Resolved*, That a Corps of Invalids be formed, consisting of eight companies * * * this corps to be employed in garrison and for guards in cities and other places where magazines or arsenals or hospitals are placed; as also to serve as *a military school for young gentlemen* previous to their being appointed to marching regiments; for which purpose all the subaltern officers, when off duty, shall be obliged to attend a mathematical school, appointed for the purpose, to learn geometry, arithmetic, vulgar and decimal fractions, and the extraction of roots; and that the officers of this corps shall be obliged to contribute one day's pay in every month * * * for the purpose of purchasing a regimental library of the most approved authors on tactics and the petite guerre * * *

Lewis Nicola was elected to be colonel of the Corps, and the Board of War was ordered to report a plan for carrying out the foregoing resolve.

The report has a French flavor. The Corps of Invalids was in fact a Corps of Veterans; the Academy was an Ecole d'Application; the term petite guerre was naturalized in America from this time onward. General Washington always uses it in his letters, for instance. The Board of War reported its plan for raising the corps on June 23, and in July, 1777, the corps was organized in Philadelphia. According to the organic act, it was to contain 40 officers and 920 enlisted men.

The plan adopted by Congress (July 16, 1777) declares: "As this corps is intended, not only as a provision for disabled officers and soldiers, but as *a school for propagating military knowledge and discipline*, no officers need apply but such as produce ample certificates." During the winter of 1778 General Knox, with the artillery, was at Pluckemin, N. J., and here he established "an academy where lectures are read

in tactics and gunnery." The auditorium of the academy was 50 by 30 feet, "arched in an agreeable manner, and neatly plastered within."

The post of West Point received its first garrison January 20, 1778, and work on Fort Clinton was immediately begun. As early as February 8 there was a company of sappers and miners at the post; in November there were two companies of artillery there; a Laboratory was constructed in December; possibly some of the Corps of Invalids were present in April, 1778. In September a letter from West Point says that it is now too late to bring any of the Invalids on from Philadelphia—the meaning possibly being that no more can be sent this season. In November, however, it is recorded (November 17) that members of the Invalid Corps were then on duty at West Point. In July, 1781, the Invalids at Philadelphia were marched to West Point at the request of Washington. In August, 1782, the whole corps was at that post.

It thus appears that in 1778 some of the Corps of Invalids were at West Point; in 1781 the greater part of them; and in 1782 all of them. They constituted the Military Academy at the Army. How much did the term imply?

An elaborate map of West Point, made by a French officer in 1780, in the very midst of the war, throws a flood of light on the question.

The legend of the map declares that it represents the post in 1780, and it is easy to prove that this is at least approximately correct. The situations and dimensions of many buildings are laid down, and among them three are especially important, viz:

N: École du Génie, about 64 by 56 feet (it is the "Old Academy" on the map of 1815).

S: Bibliothèque, about 120 by 60 feet (not on the map of 1815).

U: Laboratoire, about 30 by 36 feet (not on the map of 1815).

The engineers had been domiciled at West Point for something like two years, as we shall see, and they, or the officers of the Invalid Corps, or both, had established an engineer school, which was housed in a substantial building. The

MAP OF WEST POINT IN 1780.

N. Engineer school; S. library; U. laboratory.
(The words in English were added in 1904.)

building for the library is indicated only in outline; those for the school and the laboratory are drawn as permanent structures. Paths lead from the School to the barracks, and also to the springs where the water for the post was obtained.

There is, then, no doubt that in the very midst of the Revolutionary war, at least as early as 1780, and possibly as early as 1778, an engineer school was in operation at West Point.

There was also a laboratory, which must be considered as the "continental laboratory"—the parent of the Springfield armory. It was constructed before December 21, 1778. The library for the Military Academy at the Army was either built or projected on a large plan. This is the parent of the library of the U. S. Military Academy. It is the oldest Government Library in the United States. Military instruction of some sort was, no doubt, given intermittently. It is recorded that "experiments" in gunnery were tried on February 5, 1780. On October 29, 1780, a return of the Corps of Invalids at West Point gives the strength as 20 officers, 1 surgeon, 1 mate, and 362 enlisted men. In August and October, 1780, the entire garrison was 3,000 men.

Early in 1783 it was seen that the American Revolution had been successful. In the plans for the peace establishment of the Army the necessity for military education was not forgotten. It had been impressed on every officer of experience; on Knox, whose artillerists needed a training like "that of Woolwich;" on Alexander Hamilton, at first an artillery officer under Knox, and later a trusted member of Washington's military family; on Washington himself, who daily felt the necessity for artillerists and engineers; as well as on all in high command. The foreign officers in our Army had demonstrated the immense value of professional training. Duportail, Kosciusko, Villefranche, L'Enfant of the Engineers; Steuben, Inspector-General; are names that at once arise in the memory.

On April 11, 1783, Alexander Hamilton, chairman of the Committee of Congress on Peace Arrangements, asked General Washington's opinion on the military establishment of the new nation. Washington referred this request to his

general officers then encamped near Newburgh and at West Point. The subject was thoroughly discussed by other officers also about the same time.

On March 3, 1783, and again on May 17, Benjamin Lincoln, then Secretary of War, recommended to Congress the establishment of five arsenals at each of which there should be a military academy and that officers of ability should be placed in command who could superintend the instruction of the pupils. West Point was one of the sites selected for a school of the sort.

Baron Steuben, writing to Washington and to Lincoln upon the peace establishment (April, 1783), submitted a very complete plan for a military academy. The principal features were:

The establishment to consist of a military academy and a military manufactory under a director-general and a council (the council to be constituted somewhat like our Board of Visitors).

One hundred and twenty Cadets, to be over 14 years of age, were provided for, and each one was to pay $300 per year.

All Cadets were to be instructed in natural philosophy, eloquence and belles-letters, civil and international law, history and geography, mathematics, civil architecture, drawing, French, horsemanship, fencing, dancing, and music; and artillery and engineer Cadets were to receive further and special instruction. Cadets were to be uniformed.

There were to be 5 professors (of mathematics, law, etc.) and 7 masters (of architecture, French, dancing, etc.).

No person was to be commissioned in the Army who was not a graduate of one of the military academies (unless he had served as an officer in the Revolutionary war).

The director-general was to receive a salary of $2,832; professors, $1,344.50; Cadets, about $260 per year.

On the 16th of April, 1783, General Huntingdon, writing from West Point, said: "West Point has been held as the key of the United States. * * * With a little more expense than maintaining a garrison of 500 or 600 men it may be made a safe deposit where every military article may be kept * * * and with a small additional expense an academy might be here instituted for instruction in all branches of the military art."

Timothy Pickering, Quartermaster-General, wrote his

thoughts on the military peace establishment to Washington on April 22, 1783. He gives at length the duties that the Army will have to perform in time of peace, and recommends the establishment of five arsenals. The main arsenal was to be at West Point; the others in Massachusetts, Pennsylvania, Virginia, and South Carolina. The garrison of West Point should be 100 men, besides the Corps of Invalids. Engineer officers must be retained in the reorganization. An elaborate plan for training the militia was laid down. Each State will probably choose to garrison, with troops of its own, all its forts on the seacoast. He then says: "I will take the liberty to add a page or two on the subject of military academies, which have been mentioned as proper to be erected where the Continental arsenals shall be established. * * * If these plans are not *impracticable*, I am clear that at present they are *inexpedient*. * * * If anything like a military academy in America be practicable at this time it must be grounded on the permanent military establishment for our frontier posts and arsenals and the wants of States, separately, of officers to command the defenses on their seacoasts. On this principle it might be expedient to establish a military school or academy at West Point. * * *"

General Washington wrote to Hamilton (May 2) his "sentiments on a peace establishment," recommending "academies, one or more, for the instruction of the art military, particularly those branches which respect engineering and artillery; * * * that the regiment of artillery and the Corps of Invalids should garrison West Point," * * * and saying: "I would propose that provision should be made at some post or posts where the principal engineers and artillerists shall be stationed for instructing a certain number of young gentlemen in the theory of the art of war."

The chief engineer, Brigadier-General du Portail, reported on the establishment for the artillery and engineering department on September 30, 1783. "The necessity of an academy to be the nursery of the corps is," he says, "too obvious to be insisted on." The academy would require masters (professors) of mathematics, natural philosophy, chemistry, and

drawing; military instruction should be given by officers of the Army; the course of study should extend over three years; twenty students should be appointed, "because if the Union of the States is durable," they will be needed in the future.

Capt. Lewis Garranger memorialized Congress in 1783 on the necessity of retaining West Point, and submitted a scheme of military education. The military academy should, he thinks, be established at Philadelphia, and other schools might well be founded—two in the northern States and one in Charleston, S. C.

The very first foreign suggestion for a military academy has been found by Capt. H. M. Reeve, U. S. Army, in a letter of M. Floberque de la Rocatelle to General Washington, dated August 5, 1777. He proposes to form a school where the theory of the military art shall be taught, and that the regiment of artillerists and engineers and that of bombardiers and cannoneers shall be stationed at the post chosen for the school. Nothing came of this suggestion.

The committee of Congress of which Lieut. Col. Alexander Hamilton was chairman brought in (1783) a plan for a peace establishment of the Army. Their report contemplated four regiments of infantry and one of dragoons, and one regiment of artillery incorporated in a corps to be denominated the "Corps of Engineers." This corps was to be composed as follows: 1 major-general, or brigadier general, commandant; 65 other commissioned officers; " 1 professor of mathematics; 1 professor of chemistry; professor of natural philosophy; professor of civil architecture, etc." The professors were to receive the pay of lieutenant-colonels. Arsenals should be kept on foot in different parts of the United States. "With respect to the establishment of military academies * * * the committee are of opinion that the benefits of such institutions rarely compensate for the expense; and that, by having the 3 professors proposed to be be attached to the Corps of Engineers all the utility to be expected from academies may be substantially obtained; that, at all events, such institutions can only be the object of future consideration."

Here, it will be seen, the plan of a military academy like that of Woolwich is again put aside in favor of a regimental

school of application. Washington had recommended the same plan. In a report of the Secretary of War—General Knox—of 1790, which was approved by General Washington, "adequate institutions for the military education of youth" were again advocated.

In order to follow the evolution of the idea of military education it will be necessary to summarize the early history of the Army, especially that of the Artillerists and Engineers.

On June 16, 1775, provision was made by Congress for a chief engineer of the Army and two assistants, and during the next years various persons, usually French officers, were appointed to be officers of Engineers with the rank of colonel, lieutenant-colonel, major, and captain, while in 1777 the Chevalier du Portail was made brigadier-general and head of the Corps. An order of June 9, 1778, from the headquarters of the army at Valley Forge reads as follows: "Three captains and nine lieutenants are wanted to officer the Corps of Sappers. As the Corps will be *a school of engineering* it opens a prospect to such gentlemen as enter it. * * * The qualifications of the candidates are that they be natives, and have a knowledge of the mathematics and drawing, or at least be disposed to apply themselves to these studies." The engineers in the service were formed into the Corps of Engineers by act of Congress, March 11, 1779. At the termination of the Revolution the Secretary at War was directed to express to the French minister the high sense Congress entertained of the zeal, ability, and conduct of several French engineer officers, and the Agent of Marine was directed to provide them with a passage to France in the ship *Washington.* They had done a great work in America and had trained a large number of Americans in their art. They left behind them several younger officers who remained in the service of the United States. An act of Congress, of March 3, 1799, authorized the appointment of two engineers with the rank of lieutenant-colonel, and on March 16, 1802, the organic act of the U. S. Military Academy was passed. It authorized the President of the United States to organize and establish a Corps of Engineers to consist of 1 major, 2 captains, 2 lieutenants, and 10 cadets and to enlarge the corps so that the

number of the whole corps shall at no time exceed 20 officers and cadets. "*The said corps when so organized shall be stationed at West Point, in the State of New York, and shall constitute a military academy.*"

A military academy "on the plan of Woolwich," first suggested by Knox in 1776, was thus finally established in 1802. The intervening years were spent in experiments in educating young officers with their regiments. It required nearly a quarter of a century to convince Congress and the country that a work that all recognized to be indispensable could best be done at a separate school.

The act of Congress of May 9, 1794, authorized the raising of a Corps of Artillerists and Engineers and provided for four battalions of four companies, each company to consist of 1 captain, 2 lieutenants, and 2 *Cadets* with the pay, clothing, and rations of a sergeant, and of 62 enlisted men. Thirty-two Cadets of artillery and engineers were thus authorized to be appointed. They were young gentlemen in training to become commissioned officers, and took the places, and some of the duties of the ensigns of earlier days. They carried muskets like sergeants, but were sometimes detailed (in later years) as judge-advocates of general courts-martial. The act of 1794 further provides "that it shall be the duty of the Secretary of War to provide, at the public expense * * * the necessary books, instruments, and apparatus for the use and benefit of the said corps."

In 1798 the act of July 16 increased the Army. It fixed the pay of Cadets at $10 per month and two rations per day, and enacted "that the President of the United States be * * * authorized to appoint a number, not exceeding four, of teachers of the arts and sciences necessary for the instruction of the artillerists and engineers, who shall be entitled to the monthly pay of $50 and two rations per day." The duties of the teachers were to instruct all the junior officers, and possibly the non-commissioned officers, not merely the Cadets.

The act of March 3, 1799, provided for 10 Cadets to each regiment of infantry and cavalry, and 32 Cadets to each regiment of artillery, and fixed the pay of Cadets as before (except

that Cadets of cavalry were supplied with forage). The act of March 16, 1802, retained 2 Cadets to each company of artillery and 1 to each of infantry at $10 monthly pay, and established the Corps of Engineers with its 10 Cadets (the Military Academy) who were to receive $16 monthly and two daily rations. Until this date the artillerists and engineers had formed one corps.

From 1794 to 1802 there were Cadets "of the Service," as they often called themselves then and afterwards, and only these. In 1802 10 Cadets of engineers were authorized. They, with their officers, were stationed at West Point, and constituted the Military Academy of the years 1802–1812. In 1808 the act of April 12 provided for an addition to the Army, consisting of infantry, riflemen, light artillery, and light dragoons. Each company or troop of the regiments was to contain two Cadets, paid like those already in the service.

The act of January 11, 1812, again authorized an additional military force, to consist of infantry, artillery, and light dragoons. Cadets were authorized (and paid) as before, two to a company or troop. The act of April 20, 1812, made further provision for the Corps of Engineers, and enacted "that the Cadets heretofore appointed in the service of the United States, whether of artillery, cavalry, riflemen, or infantry, or that may in the future be appointed as hereinafter provided,[a] shall at no time exceed 250; that they may be attached, at the discretion of the President, as students to the Military Academy, etc." The sum of $25,000 was appropriated for erecting buildings and for providing a library, apparatus, and instruments for the school.

The foregoing summary has carried us too far forward and it is necessary to return to the year 1783. From this date the subject of military education was allowed to sleep, until General Washington, then President, suggested the establishment of a military academy in his message of January 8, 1790, and repeated the recommendation in his message of October 25, 1791. In 1790 Alexander Hamilton, Secretary of the Treasury, reported in favor of retaining West Point as

[a] The wording of the act unintentionally excluded Cadets of light artillery from the Military Academy.

a military post; and General Knox, then Secretary of War, in a report of January 21, 1790, expressed himself strongly in favor of a Military Academy. In November, 1793, the question of a military school at West Point was debated by the Cabinet—Washington, Randolph, Knox, and Hamilton favoring its establishment. Jefferson doubted whether such action would be constitutional. Washington declared that he would leave this for Congress to decide.

In the same year (1793) Pickering, Secretary of War, selected scientific foreign officers to be connected with a school at West Point. In President Washington's fifth annual address (December 1793) he declares that "it is an inquiry that can not be too solemnly pursued" whether the militia act ought not to be improved by affording "an opportunity for the study of those branches of the military art which can scarcely ever be attained by practice alone." On the 9th of May, 1794, the grade of Cadet was created, as before stated, and "in 1794 at the recommendation of Washington, a military school was commenced at West Point." It continued until its building—the old provost prison, was burned in 1796. Three battalions of the Corps of Artillerists and Engineers were assembled at West Point in 1795, and early in 1796 Lieutenant-Colonel Commandant Rochefontaine, and Majors Tousard and Rivardi, all highly educated officers, were at the post. The school began in earnest in February, 1796, as is shown by the following orders of Colonel Rochefontaine:

WEST POINT, *February 10, 1796.*

The officers are requested to attend in the study room every day, in the morning, between the hours of 11 and 12 o'clock, and from 4 to 5 in the afternoon, to receive the first lecture on the theoretical part of fortification. The morning meeting will be spent in explaining the different principles of fortification and copying the author (Mr. Muller). In the afternoon the officers will draw the plans relative to the explanation given in the morning. The officers will be furnished in the room with pen, ink, and paper in the morning, and the books from which the study is originated. In the afternoon they will be provided with paper, pencil, ruler, and mathematical instruments for drawing. Mr. Warren, temporary engineer, will attend the evening sitting and will explain the principles of drawing. The officers may meet an hour sooner if they

THE LIBRARY, U. S. M. A. (BUILT, 1841. DRAWN BY HENRY WINSLOW, 1903.)

please for their own information. The rule to be observed in the room for the preservation of good order will be that the senior officer present will be the moderator, and will preserve over the other officers that superiority which military subordination has established among military men.

Twelve companies, comprising 1 lieutenant-colonel, 1 major, 3 adjutants, 8 captains (1 on furlough), 13 lieutenants, 3 Cadets (1 on furlough), were then present at West Point, according to the muster roll for February, 1796.

WEST POINT, *March 28, 1796.*

To-morrow at 10 o'clock in the morning the officers are invited to meet at the instruction room to copy the several plans of fortification drawn after the directions of Muller. Captain Finiel, temporary engineer, sent to this garrison by the Secretary at War, will assist the officers in the execution of said plans. To-morrow at 4 o'clock in the afternoon, meeting of the officers in the instruction room for the continuation of the lectures on the Baron's [a] Regulations.

[By order of Lieutenant-Colonel Commandant Stephen Rochefontaine.]

In May a parapet was constructed "for the field-pieces to practice upon," and about the same time a "wooden fortification" was erected for instruction. It was a model of a bastioned front made by Colonel Rochefontaine and Major Rivardi, and stood in the "model yard" near the present site of the Thayer statue. It was surrounded by twelve elm trees planted by Swift and Armistead about 1802.

In April the study room (otherwise "the instruction room") was destroyed by fire, but the school went on, as the following order shows:

WEST POINT, *April 28, 1796.*

The Secretary of War having intimated that it was his desire that the instruction of the officers should be continued daily, and that some of the officers' rooms might be made use of until the loss of the officers' barracks is repaired, it is the lieutenant-colonel commandant's request that a board of officers consisting of four captains of the garrison should sit as commissioners to visit in the private quarters the rooms that may be thought convenient to serve as a study room, and make a report immediately.

Gen. J. G. Swift, writing in 1807, speaks of a visit made by himself to Albany in 1802, during which he heard Alexander Hamilton express regret at the burning of the old provost at West Point in 1794.[b] Hamilton said that "the fire

[a] Baron von Steuben's Regulations [b] Query 1795?

was by some deemed a design of such officers as had been sent to the Point for instruction in the arts and sciences, as provided for by law." In a letter written in 1840, General Swift states that a school was commenced at West Point upon the recommendation of Washington in 1794, and that the building was burned down by an incendiary in 1796, with its contents of books and apparatus.

Alexander Hamilton's first draft of President Washington's message to Congress (December, 1796) recommended a military academy.

The school of fortification continued for some months at least, for under the date of December 16, 1797, we find an entry in the Quartermaster's waste book respecting the issue of 20 mahogany rulers, 4 sticks of india ink, gamboge, indigo, paint brushes, etc., which could only have been for the use of the study room.

Practical instruction was given to the young officers (Cadets recently promoted to be lieutenants) according to the order following:

WEST POINT *June 26th, 1797.*

SIR: You will inform Lieutenants Rodrigue, Vandyke, Ross, Rand & Parkinson—that there will be exercises for them every other day at five o'clock in the afternoon, untill further orders. It will begin this day, and they will meet at the woodyard[a] at the hour aforesaid.

The Captains will take turn to Instruct the Gentlemen in the exercise of the *field Pieces, Howitzers, Mortars Seacoast pieces,* etc.

I am, Sir, Your obed't. serv't.

STEP. ROCHEFONTAINE
Lt. Col. Comt.

Lieut. Dransey. [Adjutant]

In June, 1798, Alexander Hamilton wrote to the Secretary of the Treasury regarding steps that should be taken "without delay," and one of them was "to establish an academy for military and naval instruction. This is a very important measure and ought to be permanent." The plan for a military academy held its place among the thousand preoccupations of Hamilton's far-seeing mind. In July, 1799, a project of his had been forwarded to Mr. McHenry, Secretary of War, as we learn from a letter of President Adams.

[a] The woodyard was, it is believed, situated on the site of the academic building of 1...

In September of this year the superintendency of the Military Academy of the United States—an institution not yet established—was offered by Adams to Benjamin Thompson, Count Rumford. Rumford—major-general, minister of war and privy counsellor, fellow of the royal societies of London, Berlin, and Munich, founder of the Royal Institution—had reorganized the military establishment of Bavaria and had founded the Royal Military Academy of Munich. By his epoch-making experiments on artillery, on heat, and in chemistry, he had placed himself in the very front rank of men of science. It is curious to speculate on what the history of our Academy would have been had its direction been assumed in 1798 by Rumford, the great physicist, soldier, statesman, and practical man of affairs.

Hamilton, on November 23, 1799, presented to the Secretary of War (McHenry) a complete plan for the organization of a military school or group of schools.[a] A copy of the scheme was sent to Washington on the 28th of the same month. On December 12 Washington replied to Hamilton in the very last letter that came from his hand:

MOUNT VERNON, *12 December, 1799.*

SIR: I have duly received your letter of the 28th ultimo, enclosing a copy of what you had written to the Secretary of War, on the subject of a Military Academy.

The establishment of an Institution of this kind, upon a respectable and extensive Basis, has ever been considered by me as an object of primary importance to this country; and while I was in the Chair of Government, I omitted no proper opportunity of recommending it, in my public speeches and other ways, to the attention of the Legislature. But I never undertook to go into a detail of the Organization of such an Academy, leaving this task to others whose pursuits in the paths of Science, and attention to the arrangements of such Institutions, had better qualified them for the execution of it. For the same reason I must now decline making any observations on the details of your plan; and as it has already been submitted to the Secretary of War, through whom it would naturally be laid before Congress, it might be too late for alterations if any should be suggested.

I sincerely hope that the subject will meet with due attention, and that the reasons for its establishment, which you have so clearly pointed

[a] A letter on the same subject was addressed by Hamilton to the Speaker of the House of Representatives early in 1799.

out in your letter to the Secretary, will prevail upon the Legislature to place it upon a permanent and respectable footing.

With very great esteem & regard, I am, &c.

GEORGE WASHINGTON.

Washington "ever" considered the establishment of a military academy as of "primary importance." In writing these words his mind must have reviewed the whole history of his endeavors to establish a system of military education; the early proposals of members of his military family; the formation of the Military Academy at the Army; the assembly, by his order, of the Corps of Invalids at West Point in 1780–81, with its little engineer school on the plain; the "experiments" in gunnery during the war; the organization of the sappers; the Army's need of trained engineers; his own projects of 1783 to include a military school as a part of the peace establishment. Noting how all these had so far failed to fulfill the prime necessity, he would recall his frequent recommendations to the Legislature; the creation of Cadets of the Service in 1794; the provision for teachers, instruments, and apparatus; the selection of accomplished officers to conduct the school at West Point, and their beginning of systematic military education. For nearly a quarter of a century he had striven to establish a military academy for the nation. Now that the project was near accomplishment, he once more expressed to the Legislature his convictions and hopes, and in this final letter claimed his part. He had ever advocated the establishment of two national institutions of learning—a military academy and a national university. On the establishment of either it could claim him as its father and founder.

Hamilton's plan for a military academy contemplated the foundation of four schools—the fundamental school, the school of engineers and artillerists, the school of cavalry and infantry, the school of the Navy.

The staff was to be a director-general; a director to each of the separate schools; 6 professors of mathematics; 4 of geography and natural philosophy; 2 of chemistry, including mineralogy; 3 architects; 4 drawing masters; 1 riding master; 1 fencing master. The fundamental school was to form

officers for all arms of the service and for the Navy, consequently in this school all the sciences necessary to a perfect knowledge of the military art were to be taught. Its plan corresponds exactly to that of the Military Academy of to-day, except as to its relations to the Navy. The school of engineers and artillery and of cavalry and infantry, were to be *schools of application* like those subsequently established at Fort Monroe, Fort Leavenworth, and Willets Point.

The schools were to be "provided with proper apparatus and instruments for philosophical and chemical experiments, for astronomical and nautical observations, for surveying, and such other processes as are requisite. * * * It would also tend greatly to the perfection of the plan if the academy of artillerists and engineers was situated in the neighborhood of founderies of cannon and manufactories of small arms." Here we have the plan of Knox—an academy like Woolwich—elaborated by Hamilton. In its essentials it is the scheme of military education of the whole American Army for the century 1802–1902.

On July 25, 1800, John Adams wrote to the Secretary of War (Dexter) respecting a military academy. He is ready to appoint 64 cadets, 4 teachers, and 2 engineers; he directs that books and instruments should be bought; is of the opinion that cadets should be instructed at different stations in rotation; that midshipmen should be admitted also; and he asks if Capt. W. A. Barron and Mr. B. de Pusy will do as teachers.

On the 28th of September, 1800, Col. Henry Burbeck, chief of Artillerists and Engineers, submitted to the Secretary of War (Dexter) a memorandum recommending the establishment of a "military school for instructing the arts of gunnery, fortification, pyrotechny, and everything relative to the art of war; that there be taken from the line of the Artillerists and Engineers 1 field officer and 4 captains well versed in science, especially in mathematics and natural philosophy, to be employed in superintending the laboratory and instructing the officers of the line and the Cadets, whom the commanding officer of each separate district shall send, in rotation,

* * * and that the whole superintendency and instruction be afforded by these officers." This plan for a school of application, for officers and Cadets jointly, was a return to the policy carried out in 1797 by Colonel Rochefontaine. The plan did away with the 4 civilian teachers of the arts and sciences authorized by the act of 1798, and thus effected a small economy.

On January 6, 1801, Mr. George Baron was, nevertheless, appointed as a teacher under this act. He acted as professor of mathematics at West Point until he was dismissed February 11, 1802. He was a man of force and ability, though not of high character. He had been a fellow-teacher with the celebrated Hutton at the Royal Military Academy at Woolwich, and his methods of instruction must have been those of the Woolwich of that day. Cadet Swift says (October, 1801): "Professor Baron furnished me with a copy of Hutton's Mathematics and gave me a specimen of his mode of teaching at the blackboard." The use of the blackboard in the class room is a special feature of West Point methods, the credit for which is often given entirely, but improperly, to Prof. Claude Crozet (1816–1823), formerly of the École Polytechnique. We owe to the Polytechnique many fine traditions, and especially our courses in Descriptive Geometry. The class-room use of the blackboard spread from West Point throughout the United States and has greatly influenced our common schools.

On the 14th of April, 1801, the Secretary of War writes to Lieutenant-Colonel Commandant Tousard to inform him of his appointment as inspector of artillery; "when you shall not be otherwise necessarily employed you will give all the assistance in your power in the instruction of such officers and Cadets as may be at West Point." On the next day the Secretary writes to the commanding officer at West Point that it is in contemplation to establish a military school there; and on the 12th of May he writes to General Wilkinson: "The President has decided on the immediate establishment of a military school at West Point; * * * Maj. Jonathan Williams is to be inspector of fortifications; * * * he is

to be at West Point to direct the necessary arrangements for the commencement of the school." A letter of the same date to the military storekeeper shows that it was contemplated to provide for 20 or 30 pupils—officers and cadets—a teacher of mathematics, and a "practical teacher of gunnery." The academy is to be a wooden two-story building, 30 by 20 feet, finished in a plain manner, the whole of each story to be in one room. The upper story was "the long room;" the lower was probably divided. On July 2, 1801, all cadets in the service (except one) are ordered to report at West Point early in September.

As in the school of 1796 the subaltern officers made difficulties and "refused to receive the instruction offered them by the wisdom of the Government." The Secretary of War (October 19, 1801) declares that such conduct must cease, and writes to an officer (November 19): "It is a duty to your country to improve this opportunity." An amusing picture of the discipline of the day is given in Swift's Memoirs. Cadet Swift had words with the professor of mathematics (Baron), who fled to the Academy and locked himself in, exchanging epithets with the angry cadet below.

Swift's account of the Academy in 1801 deserves quotation:

> West Point plain is 190 feet above the level of the Hudson, and forms an area of 70 acres, bounded by the margin of the plain overlooking the river on the east and north. The buildings which I found on my first arrival at the Point were: At the [north] dock a stone house; on the brow of the hill above the first dwelling is the "White quarters," the residence then of the commandant, Lieutenant Osborn, and his beautiful wife; and then the artillery mess of Lieutenants Wilson and Howard. The Academy is situated on the western margin of the plain, near the base of rocks on whose summit, 400 feet above, stands Fort Putnam. Near the Academy was an office on the edge of a small hollow, in which depression were the remains of a mound that had been formed at the close of the Revolution, to celebrate the birth of a Dauphin of France, our great ally in those days. To the south of this relic were the headquarters that had been the residence of General Knox and the scene of many an humble meal partaken by Washington and his companions in arms, at this time the residence of Maj. George Fleming, the military storekeeper. Farther south the quarters of Lieutenants J. Wilson and A. Macomb and a small building afterwards used as a laboratory. In

front of these was the model yard, containing a miniature fortress in wood, used in the lectures on fortification, the handiwork of Colonel Rochefontaine and Major Rivardi. Around this yard Cadet Armistead and myself planted 12 elm trees. To the south and at the base of Fort Putnam Hill also were Rochefontaine's quarters, now the residence of the family of Lieutenant-Colonel Williams; diagonally from the garden gate of these quarters Rochefontaine had constructed a paved foot walk to the barrack on the northeast side of the plain, now the Cadets' quarters. They are 240 feet in length and were constructed by Major Rivardi, whose quarters were in a building at the northern base of the Fort Putnam Hill, by the road leading to the German Flats and Washington's Valley. Below the plain at the northwest, near the river, were the military stores, two long yellow buildings, containing the arms and accoutrements of the army of Burgoyne and also numerous brass ordnance surrendered at Saratoga, and especially a couple of brass "grasshoppers" taken by General Greene in South Carolina, and by resolve of Congress presented to that very distinguished commander, all under the care of Major Fleming, who seemed to view them as almost his own property, he having served in the conquest at Bemis Heights and Saratoga. To the east of these stores was the armory, and also the residence of Zebina Kingsley, the armorer, and his exemplary wife. To the east was the hospital, under the charge of Dr. Nicholas Jones, our surgeon, and brother of Mrs. Lieutenant Osborn.

At the northeast angle of the plain was Fort Clinton, a dilapidated work of Generals Duportail and Kosciusko, engineers in the Revolutionary war. This work was garnished with four 24-pounder cannon, on seacoast carriages. The fort also inclosed a long stone magazine filled with powder "many years of age." The gloomy portals of these walls might remind one of Dante's Inferno. To the west, overlooking the plain and 500 feet of elevation, is Fort Putnam, a stone casemated castle, having on its platform a couple of 24-pounder fieldpieces of artillery. This work was commenced in 1777, and had been repaired at various periods and never completed. The tradition was that Arnold had purposed to admit British troops from the rear of this castle to overawe the plain and works below. A surer plan for the purpose of the traitor could not have been devised. On the eastern margin of the plain and 60 feet below there are stone steps leading to a small area whose outward edge is of rock, sloping almost vertically to the Hudson. In this area is a small basin in which had played a fountain, the whole having been constructed by Kosciusko, and was his retreat and called after him, "Kosciusko's garden." Lieutenant Macomb and myself had repaired this garden, and it is a favorite resort.

Some 90 yards south of Rivardi's barracks is a circular depression in the plain, on the west margin of which are the ruins of the "old provost." Nearly a mile northwest of the Point a ravine leads to a

cascade over a rock, the water from which winds to the Hudson at the "red house," the occasional resting place of Washington, called "Washington's Valley," and is at the termination of the slope of the Crow's Nest, a mountain of 1,500 feet in altitude that overlooks the Point and river and many miles around. Adjoining the south boundary of the plain a road leads down the bank of the Hudson to Buttermilk Falls and to Fort Montgomery. The last named is the scene of the defeat of General Clinton, October, 1777. The road previously mentioned passed through the farm of Esquire North, whose house stood near the south boundary of the plain, a tavern that much annoyed the command at West Point by selling rum to the soldiers, because of an illegal act of Captain Stelle of the Army, who, in 1794, had leveled a fieldpiece at North's house and suffered a severe penalty therefor in a law suit. Mr. North's victory proved him to be a bad citizen, and his success an evidence of the law's supremacy.

On December 14, 1801, Major Williams, a grand-nephew of Benjamin Franklin, was ordered to repair to West Point and to take the superintendence of the military school. There were 12 "gentlemen Cadets" (the name was in use in 1816 or later). All of them were taught in one class. The academic hours were from 8 a. m. to noon. Hutton's Mathematics (a Woolwich book), Enfield's Natural Philosophy, Vauban's Fortification, and Scheel's Artillery were the textbooks. Surveying was taught by practice. The Academy was a small building near the present quarters of the Superintendent. It was "about as large as a country schoolhouse, with its seats neatly painted in green"—all this by the care of Major John Lillie, commanding the post. His monument at West Point records that he was "an active agent in founding the Military Academy, 1801." It is worthy of note that he was the friend and business partner of General Knox. A model yard near the site of Thayer's monument contained wooden fortifications made by Rochefontaine and Rivardi. The staff of the school consisted of Capt. W. A. Barron (whose place was temporarily filled by Lieut. Stephen Worrell), Lieutenant Dransey, and Mr. George Baron. Several subaltern officers were ordered to West Point for instruction along with the Cadets, and the school went on during the summer—in "disorder," Colonel Williams reports. Cadet John Lillie, son of Major Lillie, was appointed

to the Army (not to the school) on December 24, 1801, at the age of 10 years and 7 months. He was at West Point from June, 1801, till December, 1805. In 1830 he writes in his journal, respecting the period of his Cadet life: "The Military Academy was then in its infancy. All order and regulation, either moral or religious, gave way to idleness, dissipation, and irreligion. No control over the conduct of the officers and Cadets was exercised."

By the act of Congress of March 16, 1802, the Military Academy was instituted, and on July 4 of that year went into operation. The act of 1812 established its present form. Its history begins with the year 1776. Its founder is Washington. Knox, Hamilton, Adams, Jefferson, Monroe, McHenry, Steuben, Huntington, Pickering, Duportail, and other patriots of the Revolution were the authors of various systems of military education for the new country born of war. In this group two names stand forth preeminent—Knox and Hamilton. Knox was the first proposer and the steady advocate of a military school of the very type of our own. To Hamilton the Academy and the Army owe a well-considered plan for military education that, in its main features, has sufficed for the needs of the century just passed.

WEST POINT IN 1835 (LOOKING SOUTHEAST).

From an old print.

THE ACADEMIC HISTORY OF THE MILITARY ACADEMY, 1802–1902.

By Colonel SAMUEL E. TILLMAN,

Professor of Chemistry, Mineralogy, and Geology, U. S. Military Academy—U. S. Military Academy, 1869.

THE UNITED STATES MILITARY ACADEMY, WEST POINT: 1802–1902.

Here, where resistlessly the river runs
Between majestic mountains to the sea,
The Patriots' watch fires burned. Their constancy
Won Freedom as an heritage for their sons.
To keep that Freedom pure, inviolate,
Here are the Nation's children schooled in arts
Of Peace, in disciplines of War, their hearts
Made resolute, their wills subordinate
To do their utmost duty at the call
Of this, their Country, whatsoe'er befall.
Broadcast upon our History's ample page
The records of their valiant deeds are strown.
Proudly their Alma Mater claims her own.
May she have sons like these from age to age!

E. S. H.

June, 1902

A.

INFANTRY CAPTAIN, 1813.

THE legal existence of the Military Academy as a defined institution permanently located dates from March 16, 1802, when Congress empowered the President to organize and establish a Corps of Engineers and enacted "that the said corps when so organized shall be stationed at West Point, in the State of New York, and shall constitute a military academy," and "that the principal engineer, and in his absence the next in rank, shall have the superintendence of the said Military Academy, under the President of the United States, and the Secretary of War is hereby authorized, at the public expense, under such regulations as shall be directed by the President of the United States, to procure the necessary books, implements, and apparatus for the use and benefit of the same institution." It seems proper

that the birth of the Military Academy should date from this period, because thereafter those Cadets who completed the course of instructions and were found qualified received certificates of proficiency and were recommended for promotion in different arms of the Service.

The act above referred to, establishing a Corps of Engineers and constituting it a military academy, provided for an engineer with the rank of major and two assistant engineers with the rank of captain, and authorized the President to make such promotions in the corps as he might deem fit, so as not to exceed 1 colonel, 1 lieutenant-colonel, 2 majors, and 4 captains, 4 first and 4 second lieutenants, the whole corps not to exceed 20 officers and 10 Cadets. The act also provided that there should be attached to the Regiment of Artillerists, which was provided for, 40 Cadets. Major Jonathan Williams was made head of the Corps of Engineers April 1, and on the 8th of the following July he was appointed lieutenant-colonel. The assistant engineers were Captain William A. Barron, who, like Williams, was transferred from the Regiment of Artillerists and Engineers, and Captain Jared A. Mansfield, who was appointed a captain of engineers on May 3 in order to become an instructor at West Point. Major Williams, as head of the Engineer Corps, became the legal superintendent of the Military Academy, but he did not take station at West Point until July 3, 1802.

Mr. George Baron, the teacher of mathematics in the embryo school as it existed in the autumn of 1801, was dismissed the service in February, 1802. As senior officer of engineers present, Captain W. A. Barron attempted to resume instruction in April. In May and thereafter he had the assistance of Captain Jared A. Mansfield, who had just been appointed to the corps.

On July 4 Major Williams, the head of the corps, joined his two senior assistants at the Academy, and during the summer occasionally took part himself in giving certain practical instruction. The presence of Colonel Williams at the Academy, and his personal assumption of command on this date (4th of July, 1802) may be considered as the formal opening of the Academy.

The Military Academy which provided the officers who fought the Mexican and civil wars dates from the act of 1812. Its graduates were all educated alike; were subject to the same discipline, and were assigned to all arms of the service. Until the year 1866 the Superintendent was by law an engineer officer, reporting directly to the chief of his corps, who was an ex officio inspector of the Military Academy. Colonel Thayer was Superintendent from 1817 to 1833. General Totten was a member of the Board of Visitors five times during this period (1819, 1821, 1822, 1826, and 1828). In 1838 he became Chief of Engineers and inspector, and so continued until 1864. For forty-seven years the Academy was thus held to a single consistent general policy.

A great amount of detailed historical information in regard to the different departments of the Academy since its formation was prepared by the respective heads of these departments in 1896 and will be found in the report of the Superintendent for that year. Owing to its source and manner of preparation this information has been made full use of in the present chapter. In some cases only a few omissions were necessary to fit the matter for present purposes; in others, besides omissions, it has been found necessary to rearrange the order of much of the data. The facts and statements, however, remain those of the respective heads of the departments as prepared in 1896, in so far as the substance of the statements is concerned. All the sketches have been brought up to the date of 1902.

Before introducing these detailed departmental histories it has been deemed advisable to insert a general outline of certain points of academic organization, administration, and interest which are not specially referred to in these histories.

Number of Cadets.

The grade of Cadet was first established by the law of May 9, 1794, two Cadets being allowed to each company of the Corps of Artillerists and Engineers.

By subsequent acts an increased number was authorized, but only 9 had been appointed up to the act of March 16, 1802. This act provided for 10 Cadets of engineers and 40 of

artillery. The act of April 12, 1808, provided for 156 Cadets additional to those already permitted. The act of January 11, 1812, provided for 104 in addition to the numbers above given.

By the act of April 29, 1812, the possible number that might be appointed was limited to 250 in addition to those of engineers. This act also, by direct implication, gives the Academic Board the authority to confer degrees, by using the words: "when any Cadet shall receive a regular degree from the academic staff."

By the act of March 1, 1843, the number of Cadets was limited to the number of Representatives and Delegates in Congress and one from the District of Columbia by the following words: "That each Congressional and Territorial district shall be entitled to have one Cadet at the Academy at one time, which Cadet must be a resident of the district." This act also provided "that nothing in this section shall prevent the appointment of an additional number of Cadets, not exceeding 10, to be appointed at large." At the time of the passage of this act the number of Representatives and Delegates in Congress was about 220. During the civil war the requirement as to "residence in the district" was not complied with, and appointments from the Northern States were made to represent Southern districts, but this custom was stopped by legislative action in 1865–66. For a long time the law of 1843 was construed to permit the President to have only 10 Cadets at the Academy at the same time, but about 1866 or 1867 it was interpreted to permit him 10 appointments annually, and he did for a time have more than 10 Cadets at the Academy at one time, but by the act of June 11, 1878, the number was specifically limited to 10 at one time. By the act of June 6, 1900, the number of Cadets was increased by allowing 2 additional from each State and 10 annually to the President. The maximum number of Cadets now (1902) permitted at the Academy is 492.

Appointment of Cadets.

Cadets have always been appointed by the President. Originally these appointments were, in large part, suggested to

the President through the Secretary of War, his information of the candidates coming from various sources. The desire for more equal representation of the different portions of the country at the Academy led to the suggestion of candidates by the Representatives in Congress. By 1843, when the number of Cadets was limited to the number of Representatives and Delegates in Congress, it had become quite the general custom for these Representatives to suggest to the Secretary of War the names of candidates for cadetship. Since the act of March 1, 1843, this custom has been almost uniformly followed. The increased number of Cadets permitted to the States (two each) by the act of June 6, 1900, are nominated to the Secretary of War for appointment by the United States Senators from each State. Since the President, through the Secretary of War, always follows the recommendations of the Senator or Representative, it is usually considered that the Congressman makes the appointment, and it has become his privilege to name the Cadet when a vacancy for the district or State occurs at the Academy.

Legal Status of Cadets.

The legal status of Cadets was undetermined for some twenty years after the founding of the Academy. At first it was held that they could sit upon courts-martial; then it was held that they could not, and that they could not even be tried by courts-martial. In 1819 this latter question was referred to the Attorney-General of the United States for his opinion. He held that the Cadets constituted "part of the land forces of the United States and that they have been constitutionally subjected to the Rules and Articles of War and to trials by courts-martial." Notwithstanding this opinion, the court whose action had called it forth adherred to the adverse view; however, the view of the Attorney-General was accepted by the then President and his successor in office and has been ever since the law in regard to Cadets. The present view is in accordance with this interpretation, and a Cadet is a warrant officer in the military service of the United States, this rank being the second highest non-commissioned rank.

Requirements of Candidates for Admission.

Certain requisites for admission to the Academy were prescribed by the War Department, May 18, 1810, but they were not adhered to.

By the act of April 29, 1812, it was provided that each candidate should be "well versed in reading, writing, and arithmetic." These requisites remained the same until July 22, 1866, when a knowledge of English grammar, United States history, and geography was added. March 2, 1901, it was enacted by Congress that "appointees shall be examined, under regulations to be framed by the Secretary of War, before they shall be admitted to the Academy, and shall be required to be well versed in such subjects as he may from time to time prescribe."

Under this enactment the Secretary of War prescribed that the candidates should be well versed in reading, writing, spelling, English grammar, English composition, English literature, arithmetic, algebra through quadratic equations, plane geometry, descriptive geography, the elements of physical geography, especially the geography of the United States, United States history, the outline of general history, and the general principles of physiology and hygiene."

The examination for admission in 1901 was the last held under the old requisites of 1812–1866.

By virtue of authority conferred by the act of March 2, 1901, above referred to, the Secretary of War in November, 1901, authorized the Academic Board to accept certain certificates of qualification in lieu of an examination in the prescribed subjects. The following are the conditions of these certificates:

First: The properly attested examination paper of a candidate who receives his appointment through a public competitive written examination covering the range of subjects prescribed for admission.

Second: The properly attested certificate of graduation from a public high school or a State normal school in which the course of study, together with the requirements for entrance, shall cover the range of prescribed subjects.

Third: The properly attested certificate that the candidate is a regular student of any incorporated college or university, without condition as to any of the prescribed subjects.

Examinations for Admission.

From 1818 to September 1, 1901, all candidates admitted to the Military Academy had to pass a preliminary examination. From the former date until 1870 the examinations were oral. Since 1870 they have been in writing. Until 1892 the examinations were all held at West Point; since that date they have been held at various selected points throughout the country. All written examinations have been so conducted that the personality of the candidate was unknown to the examiners.

A portion of the class entering in 1902 were admitted without examination, upon certificates in accordance with the newly enacted paragraph of Academic Regulations, making possible admission by certificate, above referred to.

Up to 1892 the entrance examinations were held in the first half of June, or about the end of August, though occasionally candidates have been examined later—as late as November 1.

From 1892 to 1901 one examination has been held in March, and effort has been made to avoid entrance examinations after June 1, but the effort has not been successful, and other examinations have been held both in July and August. In 1902 the first examination for admission was fixed for May, but subsequent examinations were also held in this year.

Examinations toward the close of and after the Cadet encampment have been deemed objectionable by the academic board for fifty years, but efforts to avoid them have not been entirely satisfactory.

Instruction and Examinations after Admission.

From 1802 to 1817 no definite or consistent system of instruction or examinations was pursued. Examinations previous to entrance were not uniformly required, Cadets were not arranged in distinct classes, definite courses of study

were not prescribed, and regular examinations were not held. With the advent of Major Thayer as Superintendent there soon followed the organization of the Cadets into a battalion and a separation into classes and division of classes into sections, according to proficiency in studies, with transfers from one section to another; weekly class reports of daily progress, the system and scale of marking, which is still followed, and the publication of the annual register. He brought about the introduction of Boards of Visitors, which had been authorized by the academic regulations of 1816. The curriculum of studies was made definite, improved, and extended. Entrance examinations for candidates were made invariable; and semiannual examinations were established for the Cadets, commencing on the 1st of January and June yearly. These semiannual examinations were conducted before the entire Academic Board. This method was pursued until about 1839, when it was concluded to divide the board into two committees. Examinations before the divided board were abandoned in 1842 and return made to a committee of the whole board. The whole board then continued to sit as a single committee for examinations until 1857, when it was again, for some of the classes, divided into two committees for examination purposes. This arrangement continued from 1857 to 1873. In 1874 and 1875 all examinations were by whole board; from 1876 to 1882 the arrangement was the same as from 1857 to 1873. From 1882 the classes were examined by two committees. This arrangement continued until January, 1900, when examinations by department committees was established for the January examinations and by class committees for the June examinations. At the same time any department in which all recitations on general review were had in writing, was authorized to exempt all Cadets from examinations who were, in the opinion of the Department, proficient in the course, except for certain classes at the June examinations.

The semiannual examinations were conducted orally until about 1881, after which no Cadet could be declared deficient without a written examination. After 1882 the method of examinations, written or oral, was left to the discretion of the

head of the department concerned. The division of classes into sections was instituted in 1818, but the small size of sections into which classes are now divided for all departments was not reached until 1860–65. Since this date the number of Cadets in the section has been substantially the same as now. The manner of conducting a recitation; testing the Cadet's knowledge of the subject recited upon, and imparting instructions have followed the same lines since 1820; in recent years, since 1880, however, much more instruction has been given, more assistance rendered Cadets, and much greater stress laid upon the practical applications of the principles taught in connection with the theories.

This tendency has gradually increased from 1880 to the present time, so that academic exercises now involve more practical application of principles than ever before. The manner of reciting and the exercises of the section are given in the detailed histories of the departments.

Scale of Academic Marking.

Immediately upon the advent of Major Thayer as Superintendent of the Academy, he instituted a scale of marking which has been adhered to ever since. Upon this scale a perfect recitation receives a mark of 3.0; good is represented by 2.5, indifferent by 2.0, bad 1.5, very imperfect 1.0, and complete failure 0.0. These daily marks are made upon the Cadet's daily section-room work and upon certain practical work during his entire career at the Academy. The summations of the daily marks obtained by Cadets during the study of a particular subject, in general represent their relative proficiency in the subject.

Weights attached to Subjects of Instruction and Class Standing.

Each subject of study has attached to it an assigned weight, these weights being fixed by the Academic Board. The weights give the relative values attached by the Academic Board at different periods to the different subjects as part of the military curriculum. The weights employed for the

different subjects in the general merit roll of the first class are here given at intervals of twenty years from 1820.

	1820	1840	1860	1880	1900
Engineering	2.0	3.0	3.0	3.0	3.0
Natural philosophy	2.0	3.0	3.0	3.0	3.0
Mathematics	2.0	3.0	3.0	3.0	4.0
Drawing	1.0	1.0	1.0	1.0	1.25
French	0.5	1.0	1.0	1.0	1.50
Chemistry		2.0	1.5	1.5	2.25
Mineralogy and geology			1.0	.75	
Tactics:					
Infantry	1.0	1.5		1.0	.75
Artillery		1.5			
Cavalry					
Conduct	1.0			2.0	1.25
English:					
Ethics			.50		
Geography	1.0		.50		
History					1.0
English	2.0		.50		.50
Rhetoric					
Ethics			1.50		
Law				1.50	1.50
Logic			1.0		
Law			1.0		
Grammar			1.0		
Ordnance			1.0	1.0	1.50
Gunnery					
Spanish			1.0	.75	.85
Practical engineering					.45
Military efficiency					1.30
Military deportment					.20

The standing of a Cadet in any one subject has always been arrived at from a consideration of the sum of the marks received in that subject coupled with any other considerations that the officers who teach the subject deem may have had influence upon the mark so received.

In the great majority of cases the standing in a particular subject is shown by the sum of the marks received in that subject, but in particular cases, for sufficient reasons, the marks are departed from, and in such case the standing does not strictly accord with marks. Such departure is made only when it is the opinion of the Board that exceptional causes have operated and that injustice would be done by adhering strictly to the marks in deciding standing. The general standing of a Cadet, or the standing in the class when all the subjects pursued during the year or term are considered, is determined by adding together the "proportional parts" which

each Cadet receives in each subject. The "proportional parts" in each subject were, up to 1896, obtained as follows: The Cadet who came out (No. 1) head in a particular subject received as his proportional part the total weight assigned to that subject. The Cadet who came out last in the subject, or foot, received for his proportional part one-third of this weight. Each other Cadet in order of standing, in the particular subject, received his proportional parts through the use of a "common difference" term, which term was subtracted in succession from the "proportional part" of the Cadet next above, the first subtraction being made from the proportional part of No. 1; or the "common difference" term might be added in succession, beginning with the proportional part of the last Cadet.

The "common difference" term was, of course, obtained by dividing the difference between the proportional parts of the Cadet standing first and the one standing last by a number one less than the number of Cadets in the class. Since 1896 the proportional parts in any subject have been obtained by giving to the Cadet who stands 1 in the subject, for his proportional part, the total weight assigned to the subject as before; each other Cadet then receives the same proportion of this total that his marks in the subject the bear to marks received by No. 1.

Departments of the Academy.

The professorships of mathematics, engineering, and natural philosophy were created by the act of April 29, 1812, though the two subjects first named had been taught from 1802. Some instruction in natural philosophy was given prior to the creation of the professorship. Although drill regulations were taught to a greater or less extent from the founding of the Academy, the department of tactics may be considered to date from September 15, 1817, when the Cadets were organized into a battalion and Lieut. G. W. Gardiner was temporarily detailed to command it; the position of Commandant of Cadets was not known to the law until the regulations of 1825. The department was not recognized by law until July 12, 1858.

The subjects pertaining to the department of chemistry were taught from October, 1820, but the professorship was not established until July 8, 1838. The professorship of drawing was established August 8, 1846, though drawing was taught from 1803. The department of modern languages came into existence June 30, 1882, in consequence of an act of Congress passed June 23, 1879. This department now embraces the study of French, Spanish, and English. French was taught from 1803; the professorship of French was created August 8, 1846. Spanish was taught from September 1, 1856; the professorship was established February 16, 1857. The study of English subjects was first introduced about 1820 and embraced general history, moral philosophy, national and political law. English grammar was introduced in 1839. The study of English was discontinued in 1867 and reintroduced in 1877. In 1878 it was placed under charge of the professor of French, and remained in his charge when the French department, in 1882, absorbed the Spanish department and became the department of modern languages.

The professorship of history, geography, and ethics was created by the act of April 14, 1818. The study of law grew up in this department between 1820 and 1830, being first introduced in 1821. The instruction in law remained under this professorship until 1874, when under the act of June 6, 1874, it was placed in charge of one of the judge-advocates of the Army.

History was first given attention at the Academy in the department of history, geography, and ethics and was introduced in 1820, probably by lecture only. It was discontinued almost immediately and reintroduced in 1856. It was again discontinued in 1862 and reintroduced in 1883.

By the act of February 18, 1896, the professorship of history, geography, and ethics was discontinued and the subject of history was transferred to the department of law. Up to 1842 the instruction in practical and military engineering was given by the department of engineering. The first instructor of practical engineering was appointed in August, 1842, and in 1844 he became a member of the Academic Board. From 1817 to 1856 the department of ordnance and

gunnery was part of the artillery branch of the tactical department. In 1857 it became a separate and distinct department.

Academic Board.

The Academic Board since 1818 has consisted of the Superintendent and heads of the different departments of instruction, the instructor of ordnance and gunnery being the last addition to the Board, in 1857.

Board of Visitors.

Provision was made for a Board of Visitors to the Academy in the regulations of 1816, but regular attendance of these visitors was not established until the advent of Major Thayer, 1817. The army regulations of 1821 prescribed that the June examinations should be held in the "presence of the Board of Visitors." The first appropriation for defraying the expenses of the Board of Visitors was made in March, 1828. From 1815 to the present time boards of visitors have annually visited the Academy and reported their observations.

Superintendents.

From the founding of the Academy to 1866 the Superintendents of the Academy were all engineer officers. Since that date they have been taken from different branches of the service. The names of the Superintendents, rank at time of appointment, and length of service as such are given below.

Superintendents of the United States Military Academy.

No.	Name.	Army rank when appointed.	Term of service From—	Term of service To	Remarks.
1	Jonathan Williams	Major, Corps of Engineers	Apr. 15, 1802	June 30, 1803[a]	Resigned.
2	do	Lieutenant-colonel, Corps of Engineers	Apr. 19, 1805[a]	July 31, 1812	Do.
3	Joseph G. Swift	Colonel, Corps of Engineers	July 31, 1812	Mar. 24, 1814	Relieved.
4	Alden Partridge	Captain, Corps of Engineers	Jan. 3, 1815	July 28, 1817	Do.
5	Sylvanus Thayer	do	July 28, 1817	July 1, 1833	Do.
6	René E. De Russy	Major, Corps of Engineers	July 1, 1833	Sept. 1, 1838	Do.
7	Richard Delafield	do	Sept. 1, 1838	Aug. 15, 1845	Do.
8	Henry Brewerton	Captain, Corps of Engineers	Aug. 15, 1845	Sept. 1, 1852	Do.
9	Robert E. Lee	do	Sept. 1, 1852	Mar. 31, 1855	Do.
10	John G. Barnard	do	Mar. 31, 1855	Sept. 8, 1856	Do.
11	Richard Delafield	Major, Corps of Engineers	Sept. 8, 1856	Jan. 23, 1861[b]	Do.
12	Peter G. T. Beauregard	Captain, Corps of Engineers	Jan. 23, 1861[b]	Jan. 28, 1861	Do.
13	Richard Delafield	Major, Corps of Engineers	Jan. 28, 1861	Mar. 1, 1861	Do.
14	Alexander H. Bowman	do	Mar. 1, 1861	July 8, 1864	Do.
15	Zealous B. Tower	do	July 8, 1864	Sept. 3, 1864	Do.
16	George W. Cullum	Lieutenant-colonel, Corps of Engineers	Sept. 8, 1864	Aug. 28, 1866	Do.
17	Thomas G. Pitcher	Colonel Forty-fourth Infantry	Aug. 28, 1866	Sept. 1, 1871	Do.
18	Thomas H. Ruger	Colonel Eighteenth Infantry	Sept. 1, 1871	Sept. 1, 1876	Do.
19	John M. Schofield	Major-general, U. S. Army	Sept. 1, 1876	Jan. 21, 1881	Do.
20	Oliver O. Howard	Brigadier-general, U. S. Army	Jan. 21, 1881	Sept. 1, 1882	Do.
21	Wesley Merritt	Colonel Fifth Cavalry	Sept. 1, 1882	July 1, 1887	Do.
22	John G. Parke	Colonel, Corps of Engineers	Aug. 28, 1887	June 24, 1889	Do.
23	John M. Wilson	Lieutenant-colonel, Corps of Engineers	Aug. 26, 1889	Mar. 31, 1893	Do.
24	Oswald H. Ernst	Major, Corps of Engineers	Mar. 31, 1893	Aug. 21, 1898	Do.
25	Albert L. Mills	First Lieutenant, First Cavalry	Aug. 22, 1898		

NOTE.—The selection of the Superintendents of the Military Academy was confined to the Corps of Engineers from the establishment of the institution, March 16, 1802, till the passage of the law of July 13, 1866, which opened it to the entire Army. By the act of June 12, 1858, the local rank of colonel was conferred upon the Superintendent.

[a] Major Williams resigned June 30, 1803, on a point of command, and pending its settlement until April 19, 1805, when he again returned to service as Chief Engineer, no permanent Superintendent of the Military Academy was appointed the command devolving upon the senior officer of the Corps of Engineers present for duty.

[b] Brevet Maj. P. G. T. Beauregard, Corps of Engineers, by order of John B. Floyd, Secretary of War, relieved Colonel Delafield, January 23, 1861, from the superintendency of the Military Academy, but was himself displaced five days later, January 28, 1861, by direction of the succeeding Secretary of War, Joseph Holt, the command again devolving upon Colonel Delafield.

Punishments Inflicted and Rewards Bestowed upon Cadets.

The punishments instituted for Cadets for inattention to and neglect of duty and disregard of regulations have been substantially the same throughout the history of the Academy—they are both positive and negative. To the positive class belong—first, "demerits" (given for delinquencies of all sorts), which affect the class standing of Cadets; second, enforced physical exercise, generally designated as "extra" or "punishment duty;" third, "confinement to quarters" or to "limited areas" or to "light prison;" fourth, punishments inflicted by courts-martial.

The negative punishments are such as result in a deprivation of privileges, and are generally accompanied by one or the other of the positive punishments. All offenses can be punished by the Superintendent, except such as may involve dismissal; these are adjusted by courts-martial.

The punishments which are imposed by the Superintendent follow very quickly upon the offenses, being always announced within two weeks of the commission or omission and put into execution immediately thereafter.

The rewards to Cadets have generally resulted from the absence of the positive and negative punishments, by which absences the Cadet has more leisure or more time to study, and because of which his class standing is or may be improved; these are but the fruits of proper conduct. Rewards have also for a long time taken the more direct form of leaves of absence for short periods at Christmas.

In 1866 the then Superintendent for a short time adopted another positive form of reward. A limited number of medals was given in the different classes for class standing, and special chevrons, with increased privileges on the post, to Cadets who avoided demerits. Since 1899 a much more extensive system of reward has been adopted, based upon the number of demerits received by Cadets during the previous month. Under this system three grades of conduct are established for each class, and each grade carries with it many privileges not permitted to the lower grades, the privileges likewise

being different for the different classes. The privileges under the present system of "grades" are far more extended than have ever before existed at the Academy. They are based entirely upon conduct, as shown by the demerits received. The system of grading is shown in the appended table.

GENERAL ORDERS, } HDQRS. U. S. MILITARY ACADEMY,
No. 4. } *West Point, N. Y., February 17, 1900.*

Paragraphs 327 and 328, Regulations U. S. Military Academy, are hereby amended, to take effect April 10 next, to read as follows:

"327. On the 10th of each month the Cadets shall be divided into three conduct grades, according to their conduct record for the last calendar month during which each shall have been present.

"For the first and second grades the following number of demerits must not be exceeded:

Class.	Number of demerits per month	
	First grade.	Second grade.
First	3	7
Second	3	7
Third	4	9
Fourth	5	10

"Those Cadets whose demerit exceeds the number allowed the second grade will constitute the third grade.

"328. The privileges attached to the several grades shall be as shown in the table herewith."

By order of Colonel Mills:

W. C. RIVERS,
First Lieutenant, First Cavalry, Adjutant.

FIRST GRADE.

FIRST CLASS.

1. Immunity from ordinary punishments.
2. May visit hotel, under usual restrictions, during release from quarters or camp.
3. May visit the quarters of officers or of families on the post during release from quarters or camp; also Saturday evening.
4. Leave (by permit) to accept invitation to dine on the post any day in camp; in barracks on Saturday or Sunday or on holidays or the evening preceding holidays.
5. Riding privileges, under usual restrictions.
6. May visit library to read at any time when open, reporting departure and return during call to quarters.

7. In camp:
   (*a*) Rowing privileges, under usual restrictions, by reporting departure and return.
   (*b*) Cadet limits from reveille to tattoo.
   (*c*) Leave (by permit) to accept invitation to visit or dine in the vicinity once each week (Saturday or Sunday or holiday); time not over 6 hours, and to end not later than 11.30 p. m. on Saturday and tattoo on Sunday or on holiday.
   (*d*) If in the first grade for 4 of the 6 months beginning December 1 and not below the second grade either of the other 2 months, may apply for leave of 3 days, including a Sunday, if money accounts warrant it.
8. In barracks:
   (*a*) Leave (by permit) to accept invitation to visit or dine in the vicinity once each month (Saturday or Sunday or holiday); time not over 6 hours and to end not later than tattoo on Saturday and evening call to quarters on Sunday or on holiday.
   (*b*) May apply for leave of not over 27 hours at Thanksgiving, if money accounts warrant it.
   (*c*) If in the first grade for 4 of the 6 months beginning June 1 and not below the second grade either of the other 2 months, may apply for leave of not over 75 hours at Christmas, if money accounts warrant it.

SECOND CLASS.

1. Riding privileges, under usual restrictions.
2. Leave (by permit) to accept invitation to visit or dine in the vicinity once for each 3 months in this grade (Saturday or Sunday or holiday); time not over 6 hours and to end not later than tattoo on Saturday and evening call to quarters on Sunday or on holiday.
3. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.
4. If in first grade for 2 of the 3 months beginning September 1 and not below the second grade the other month, may apply for leave of not over 75 hours at Christmas, if money accounts warrant it.

THIRD CLASS.

1. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.
2. In camp:
   (*a*) Cadet limits from 9 a. m. to tattoo.
   (*b*) Leave (by permit) to accept invitation to visit or dine in the vicinity once each month (Saturday or Sunday or holiday); time not over 6 hours and to end not later than 11.30 p. m. on Saturday and tattoo on Sunday or on holiday.
3. In barracks:
   (*a*) Leave (by permit) to accept invitation to visit or dine in the vicinity on holidays or to visit or dine with parents in the vicinity once for each 3 months in this grade (Saturday or Sunday); time not over 6 hours and to end not later than tattoo on Saturday and evening call to quarters on Sunday or on holiday.
   (*b*) If in the first grade for 4 of the 6 months beginning June 1 and not below the second grade either of the other 2 months, may apply for leave of not over 75 hours at Christmas, if money accounts warrant it.

FOURTH CLASS. *a*

1. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.
2. In barracks: Leave (by permit) to accept invitation to visit or dine in the vicinity with parents on holidays; time not over 6 hours and to end not later than evening call to quarters.

SECOND GRADE.

FIRST CLASS.

1. Immunity from ordinary punishments.
2. May visit hotel, under usual restrictions, during release from quarters or camp.
3. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.
4. Riding privileges, under usual restrictions.
5. In camp:
   - (*a*) Rowing privileges, under usual restrictions, by reporting departure and return.
   - (*b*) Cadet limits from 9 a. m. to tattoo.
   - (*c*) Leave (by permit) to accept invitation to visit or dine in the vicinity once each month (Saturday or Sunday or holiday); time not over 6 hours and to end not later than 11.30 p. m. on Saturday and tattoo on Sunday or on holiday.
   - (*d*) If average monthly demerit for the 6 months beginning December 1 is not greater than the number allowed for second grade and if not below second grade more than 1 month, may apply for leave of 24 hours, to begin Saturday afternoon, if money accounts warrant it.
6. In barracks:
   - (*a*) Leave (by permit) to accept invitation to visit or dine in the vicinity once for each 3 months not below this grade (Saturday or Sunday or holiday); time not over 6 hours and to end not later than tattoo on Saturday and evening call to quarters on Sunday or on holiday.
   - (*b*) If average monthly demerit for the 6 months beginning June 1 is not greater than the number allowed for second grade and if not below second grade more than 1 month, may apply for leave of 48 hours at Christmas, if money accounts warrant it.

SECOND CLASS.

1. Riding privileges, under usual restrictions.
2. Leave (by permit) to accept invitation to visit or dine in the vicinity on holidays, or to visit or dine in the vicinity with parents once for each 3 months not below this grade (Saturday or Sunday or holiday); time not over 6 hours and to end not later than tattoo on Saturday and evening call to quarters on Sunday or on holiday.
3. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.

a To be divided into grades for the first time September 1. In camp: Cadet limits from 1 p. m. to retreat.

THIRD CLASS.

1. Leave (by permit) to visit or dine with parents in vicinity on holidays; time not over 6 hours and to end not later than evening call to quarters.
2. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.
3. In camp: Cadet limits from 9 a. m. to retreat.

FOURTH CLASS.

1. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening; or accept (by permit) invitation to dine on the post on Saturday or Sunday, or on holidays, or on the evening preceding holidays.

THIRD GRADE.

FIRST CLASS.

1. May visit the quarters of officers or of families on the post during release from quarters or camp on Wednesday afternoon and Saturday afternoon; also Saturday evening.
2. May (by permit) visit the hotel or accept invitation to dine on the post only under special circumstances.
3. In camp: Cadet limits from 9 a. m. to retreat.

SECOND CLASS.

1. May visit the quarters of officers or of families on the post during release from quarters or camp on Saturday afternoon; also Saturday evening.
2. May (by permit) visit the hotel or accept invitation to dine on the post only under special circumstances.

THIRD CLASS.

1. May (by permit) visit the quarters of officers or of families on the post or hotel or accept invitation to dine on the post only under special circumstances.
2. In camp: Cadet limits from 1 p. m. to retreat.

FOURTH CLASS.

1. May (by permit) visit the quarters of officers or of families on the post or hotel or accept invitation to dine on the post only under special circumstances.

B.

HISTORY OF THE DEPARTMENT OF MATHEMATICS.

Instruction in mathematics was given at West Point to a few Cadets of the Artillery and Engineers assembled there in 1801, by Mr. George Baron, who was a civilian, appointed teacher of arts and sciences January 6, 1801. He was dismissed the service February 11, 1802.

The Military Academy was legally instituted by act of Congress March 16, 1802. Capt. Jared A. Mansfield, Corps of Engineers, was appointed acting professor of mathematics May 3, 1802, and Capt. W. A. Barron received a similar appointment July 6 of the same year. In this subject at this time the instruction was limited to "the elements of geometry and algebra, with the use of surveying instruments." Captain Mansfield gave instruction in algebra and Captain Barron in geometrical demonstration, and Major Williams, the Superintendent, in the use of instruments. Captain Mansfield was relieved from duty as acting professor of mathematics at the Academy in November, 1803. Captain Barron was acting professor of mathematics until February 14, 1807, when he was succeeded by Ferdinand R. Hassler, who served in this capacity until December, 1809. He was assisted during the years of 1808–1809 by Lieut. Alden Partridge. Hassler resigned February 14, 1810, leaving the department of mathematics in charge of Captain Partridge. Partridge had been assistant professor of mathematics since 1806, and was continuously on duty in this department until April, 1813, with the exception of portions of the years of 1810, 1811, and 1812, when he was on leave. Under the act of Congress approved April 25, 1812, reorganizing the Army, a professorship of mathematics was provided for.

On April 13, 1813, Captain Partridge was appointed to the professorship, which he held until September, being then transferred to the department of engineering and being succeeded on September 1 by Andrew Ellicott, who was professor of mathematics until his death, August 25, 1820. He was succeeded by Captain David B. Douglass, Corps of Engineers, who held the position until May 1, 1823. Charles Davies succeeded Professor Douglass, and was professor of mathematics from May 1, 1823, to May 31, 1837. Professor Davies was a graduate of the Academy of the class of 1815 and was the principal assistant professor of mathematics from 1816 to 1821. Professor Davies was succeeded by Albert E. Church, who was professor of mathematics from June 1, 1837, to March 30, 1878. Church was a graduate of the Academy of the class of 1828; he was an assistant in the department under

THE NORTH BARRACKS (LOOKING NORTHEAST).
ERECTED IN 1817; DEMOLISHED IN 1851.

THE SOUTH BARRACKS (LOOKING SOUTHWEST).
ERECTED IN 1815; DEMOLISHED IN 1849.

THE ACADEMY (LOOKING SOUTHEAST). ERECTED IN 1815;
DESTROYED BY FIRE FEBRUARY 19, 1838.

EARLY WEST POINT.

From the E. S. Bryant History of West Point

Davies for seven years before he was appointed to the professorship. E. W. Bass, a graduate of the class of 1868, was appointed professor of mathematics as successor to Church in April, 1878. He occupied the position until his retirement, November, 1898, and was succeeded by Wright P. Edgerton, the present head of the department and a graduate of the class of 1874. Bass, before his appointment as professor, had been an officer of the Engineer Corps and had served for six years as an assistant in the department of natural philosophy.

Edgerton before his appointment was an officer of artillery, and had served for ten years as an assistant in the department of which he is now the head. The first acting professor of mathematics, Mansfield, was later surveyor-general of Ohio and the Northwest, and in 1812 was appointed professor of natural and experimental philosophy. Acting Professor Hassler had been director of a geodetic survey of Switzerland, and after his service at the Academy became Superintendent of the U. S. Coast Survey. Professor Ellicott was a member of the National Institute of France. He laid out the city of Washington, ran the boundaries of the District of Columbia, and was frequently employed in determining State boundaries. He was for forty years one of the most prominent scientific men of the country. Professor Douglass was a strong character and a good mathematician, and after three years' service as professor of mathematics he was appointed professor of engineering.

Professor Davies is especially well known because of his series of text-books. His Legendre and Bourdon, with revisions and modifications, continued in use at the Academy for sixty years.

Professor Church taught mathematics at the Academy for forty-eight years. His character and capacity left a strong impress upon the Academy, and his text-books were almost as widely known as those of Davies. His text-books at the time they were written were without doubt the best in this country. His Calculus appeared in 1842, Analytical Geometry in 1851, Trigonometry in 1857, and Descriptive Geometry in 1865.

The professors since Church, Bass and Edgerton, are still living (1902) and well known to recent graduates.

In the early days of the Academy the mathematical course of study was included in Hutton's Compendium of Mathematics, and included arithmetic, logarithms, algebra, geometry, trigonometry, land surveying, and conics. Descriptive geometry was first introduced at the Academy in 1817 by Professor Crozet, which is believed to be the earliest study of this subject in America. About the same time the study of calculus was introduced.

The division of classes into smaller sections, with more liberal use of the blackboard, began at the same time, these beneficial changes being inspired by Major Thayer.

The blackboard had been used long before this and was a favorite method of Mr. George Baron, who was the civilian teacher of the Academy. Mr. Baron gave to Cadet Swift, in the autumn of 1801, "a specimen of his mode of teaching at the blackboard." Under the régime of Thayer, who became Superintendent in 1817, Hutton's Compendium was soon found insufficient and was discontinued in 1823. In 1825 the text-books in use were:

First year.—Algebra: Complement des Elémens d'Algébre, par Lacroix; Lacroix's Elements of Algebra. Geometry: Legendre. Trigonometry: Translation from Lacroix, from Lacroix and Bezout, by Professor Farrar.

Second year.—Descriptive geometry, conic section: Crozet's Treatise on Descriptive Geometry and Conic Sections. Perspective, shades, and shadows: Crozet's treatise on same. Analytical geometry: Biot. Fluxions: Traité du Calcul, par Lacroix.

In 1831 Lieutenant Ross, assistant professor of mathematics, translated M. Bourdon's Algebra, which was immediately adopted as a text-book and became the foundation of Davies's Bourdon. About this time Professor Davies began writing a series of text-books, which were adopted as they appeared, so that by 1839 all the text-books used in the course were by him, as follows:

Algebra, Davies's Bourdon's Geometry, Plane and Spherical Trigonometry, Davies's Legendre, Descriptive Geometry, Shades, Shadows, and Perspective, Surveying, Analytical Geometry, Calculus.

From 1839 until 1843 the text-books remained the same, and they give a fair impression of the mathematical course. The

following is the answer of the Academic Board, given in 1843 to certain criticisms of the course of instruction made by a board of officers of which General Scott was president. It is interesting as showing the objects and views of the Board at that time:

The Academic Board believe that one of the most important objects of the Academy is to subject each Cadet, previous to his promotion to a higher grade in the Army, to a thorough course of mental as well as military discipline, to teach him to reason accurately, and readily to apply right principles to cases of daily occurrence in the life of a soldier. They are satisfied that a strict course of mathematical and philosophical study, with applications to the various branches of military science, is by far the best calculated to bring about this end, and that the present scientific course at the Academy, the result of the experience of many years, is in its main features such a course.

They are aware that many of the Cadets, as is the case with most of those who pursue a scientific course at other institutions, will have little occasion to make practical applications of the many mathematical formulæ which they meet, and that they may have passed over certain problems without thoroughly understanding their meaning in all their points. Still, if the course has been carefully taught, the reasoning faculties will have been strongly exercised and disciplined and a system and habit of thought acquired which are invaluable in the pursuit of any profession and as desirable for the infantry or dragoon officer as for any other officer in the service. The officer whose mind has thus been disciplined and who is not forgetful of the duty which he owes to the Government that has furnished him with opportunities so valuable, will acquire facts and information in whatever station the interests of the service may place him. The discipline and system he will acquire at an early age only, and nowhere so well as during his term of service at the Academy.

In 1843 Davies's Calculus was replaced by Church's, and in 1852 Davies's Analytical Geometry was superseded by that of Church; but the course of study, with slight modifications and extensions, remained the same. The following extract, with a few unimportant omissions, from a report made by Professor Church in 1860 to a committee of inquiry, shows the extent of the course and methods employed at that time:

U. S. Military Academy, *July 31, 1860.*

Sir: In accordance with the request contained in your note of July 18, I have the honor to submit the following replies to the questions proposed by the commission instituted by the act of Congress of June 21, 1860:

1. The subjects taught in my department are algebra, geometry, trigonometry, mensuration; descriptive geometry, with its applications to spherical projections; shades, shadows, and perspective; analytical geometry, differential and integral calculus, and surveying.

Algebra.—The course of algebra comprehends all of the fundamental operations, involution and evolution; transformation and reduction of fractions and radical quantities; theory and solution of equations, including those of the higher degrees; ratios and proportions; summation of series; nature, computation, and use of logarithms.

This course is studied by the fifth class and occupies the time from the 1st of September to the 1st of January.

The first section of the class is, in general, required to study all contained in the text-book now in use—Davies's Bourdon's Algebra. The lowest section omits many of the more difficult discussions and examples, the amount studied being less than two-thirds of that required of the first section.

The intermediate sections in this, as in other subjects, omit more or less, according to their capacity and progress.

Geometry.—The course of geometry comprehends plane geometry, geometry of volumes, and spherical geometry—nine books, as in the text-book, Davies's Legendre. The entire course is required of every section of the fifth class, commencing after the close of the January examination, about the 10th of January.

Trigonometry.—The course of trigonometry comprehends the deduction and analytical investigation of all the important trigonometrical formulas; the nature, construction, and use of the various trigonometrical tables; and the solution of all cases in plane and spherical triangles.

The entire course is required of every section of the fifth class.

Mensuration.—The course of mensuration comprehends the mensuration of the various plane geometrical figures and volumes; and, with the exception of two or three problems omitted by the lower section, is required by the entire fifth class. It is studied immediately after trigonometry, and is acquired in two or three lessons.

Descriptive geometry.—The course of descriptive geometry comprehends the representation of lines and surfaces on planes; the classification and mode of generation of lines and surfaces; the construction of their tangent lines and planes; the intersection and development of surfaces; the construction of spherical triangles, of spherical projections, of the shades and shadows of various objects and their perspectives.

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In this course, as in the algebra, many of the more difficult problems are omitted by the lowest and other sections, studying not much more than half of that required by the first.

Analytical geometry.—The course of analytical geometry comprehends the construction of algebraic equations; solution of determinate problems; determination and discussion of the equations of the right line,

plane, and conic sections; discussion of the general equation of the second degree, involving two or three variables; determination of loci, etc.

* * * * * * *

Calculus.—The course of differential and integral calculus comprehends the elementary principles and rules, with their application to maxima and minima; the drawing of tangents, curvature of curves, their rectification, quadratures, cubatures, construction, and discussion of the properties of curves and surfaces.

* * * * * * *

Surveying.—The course of surveying comprehends the principles and practice of common land surveying, different methods of platting and calculating the surveys, trigonometrical surveying, measurements of heights and distances, use of instruments in platting, surveying, etc.

The entire course is required as in the text (Davies's Surveying), with the exception of a small portion relating to geodetic surveying, omitted for one or two of the lower sections. Fourth class commences this course immediately after completing the differential and integral calculus and finishes it about the 7th of May, when the mathematical course for the year is reviewed, preparatory to the June examination.

* * * * * * *

II. For the purpose of instruction and recitation in the mathematical department, each class is divided into convenient sections of from ten to fifteen members each. Two of these sections are instructed daily by one of the assistant professors, under the general supervision of the professor. Every member of each section is, if possible, required to daily explain, at the blackboard or wall slate, one or more propositions of the lesson given out on the previous day, and is thoroughly examined by questions on a portion or all of it.

Points not well understood are carefully explained by the instructor or professor. Each pupil is also expected to make known all difficulties with which he may meet, to the end that they may be at once removed and a thorough understanding of each lesson in order thus obtained. For the purpose of testing this understanding various practical examples illustrating the principles of the course are required to be worked by the pupil at the blackboard or slate.

The head of the department is also required to pass the hours of recitation in visiting two or more of the sections, and is constantly occupied in explanations of the principles of the course and their applications, either to the entire section by a familiar conversational lecture or in particular explanations of the more difficult points to individuals.

* * * * * * *

III. The only practical instruction given in my department, except the exercise in the practical solution of examples and problems, is the instruction in the drawing of problems in shades, shadows, and perspectives, and the instruction on the field in surveying. In this latter branch each section of the fourth class is sent into the field, in charge of its proper

instructor, during the hours of morning recitations, in the months of April and May, whenever the time can be spared and the weather will permit.

* * * * * * *

It is desirable that more time should be given to this practice, as well as to the instruction in drawing.

IV. From three and a half to four hours should be given daily by the Cadet to render him thoroughly proficient in the prescribed lessons of the mathematical course.

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No student should be required to prepare himself by previous study for recitation in more than two distinct subjects a day, particularly when one of them is scientific; and each lesson, as far as possible, should be recited before it is necessary to begin the study of the other.

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By 1866 Church's Trigonometry, Descriptive Geometry, Spherical Projections, Shades, Shadows, and Perspective had replaced the corresponding work of Davies.

On March 30, 1878, the long and valuable career of Professor Church was brought suddenly to an end by his death. For nearly forty-one years he had served as professor of mathematics. For forty-eight years he had taught mathematics at the Academy. From the time of his entrance to the Academy in 1824 until his death in 1878, a period of nearly fifty-four years, he was away from the Academy about two years.

Professor Bass succeeded Professor Church April 17, 1878, and in 1879 proposed the following resolution with regard to the studies of the mathematical department, which was adopted by the Academic Board:

Resolved, That the following changes in the order of instruction of the several branches of the mathematical course be adopted by the Academic Board:

1. That the instruction in surveying be transferred from the third-class to the fourth-class course, and to follow immediately after trigonometry.

2. That the instruction in analytical geometry shall follow immediately after surveying in the fourth-class course, and be continued in the third-class course until finished.

3. That the subject of descriptive geometry shall follow immediately after analytical geometry.

4. That the accurate construction, with a right-line pen, of the various problems in shades and shadows, linear perspective and isometric

projections, now under the direction of the mathematical department, be discontinued, and that the same shall hereafter form a part of the course in the department of drawing. The time for making such drawings to follow, as nearly as possible, the termination of the study of the principles relating thereto in the department of mathematics.

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The Academic Board of the U. S. Military Academy respectfully recommend to the honorable Secretary of War that Chauvenet's treatise on the Method of Least Squares be authorized as a text-book to be used in the mathematical course. The grounds for this recommendation are that knowledge of this branch of mathematics is required in the subsequent course of philosophy in this Academy and in the reduction of observations in general which officers of the Army are frequently required to make, especially in geodetic and astronomic measurements. The proposed text-book is believed to be the best separate publication on the subject.

In 1880 there was introduced as part of the course in algebra for the upper portions of the classes a short course on determinants, the subject-matter having been prepared by Lieut. J. G. D. Knight, then assistant professor in the department. In 1887 Peck's Elementary Treatise on Determinants replaced Knight's. In 1888 Elements of Trigonometry, by Lieutenant Ludlow, was substituted for Church's Trigonometry. In 1891 the Theory of Errors and Method of Least Squares, by W. W. Johnston, was substituted for Chauvenet's. During the years 1887, 1889, and 1893 different portions of Church's Differential Calculus gave place to chapters prepared by Bass, and in 1896 Church's Differential Calculus was entirely replaced by that of Bass. The chair of associate professor of mathematics was established in 1893 and First Lieut. W. P. Edgerton, of the Second Artillery, was appointed to the place.

In 1898 Professor Bass, on account of serious trouble with his eyes, was, at his own request, placed upon the retired list and was succeeded by Professor W. P. Edgerton.

Upon the recommendation of Professor Edgerton, February, 1899, Church's Analytical Geometry was replaced by C. Smith's Conic Sections and Solid Geometry. In February, 1900, Church's Integral Calculus, Davies's Bourdon Algebra, and Davies's Surveying were, respectively, replaced, upon the recommendation of Professor Edgerton, by Murray's Integral

Calculus, C. Smith's Treatise on Algebra, and J. B. Johnson's Theory and Practice of Surveying; and Peck's Determinants were discontinued.

In consequence of a revision of the academic curriculum, which goes into effect September, 1902, practical surveying and the use of surveying instruments was transferred from the department of mathematics to that of practical engineering. By the same revision the mathematical department yielded forty days (giving one hundred and eighty hours) to the department of modern languages. This time given by the mathematical department was extracted from the last half of the third-class year.

Beginning with the academic year of September, 1900, Professor Edgerton introduced an important change in the order of instructions of the fourth class. Algebra and geometry had before this date been taught in the order named, to completion of each; after this date the two subjects were studied simultaneously, with recitation in each on alternate days. In February, 1901, descriptive geometry was transferred from the fourth to the third class course, this subject being replaced in the fourth class by an equal number of lessons in conic sections. The recitations of the third class were made to alternate between conic sections and descriptive geometry. Professor Edgerton also in 1900 adopted the method of having all recitations on general reviews in writing, and thereafter, in accordance with the authority of the Academic Board, "at the semiannual examinations of both classes, at the intermediate examination of the fourth class, and at the annual examination of the third class all members who have shown themselves proficient in the written reviews are exempt from term examinations."

Organization of the Department.

The organization of the department consists of the head of the department, Professor W. P. Edgerton; the associate professor, Captain Charles P. Echols, and the requisite number of instructors, which varies with the size of the third and fourth classes.

Division of Duties.

The head of the department, as the title implies, has control of the entire department, apportions its work among the instructors, exercises a general supervision of both classes under his instruction, prepares and conducts the examinations of the classes, is responsible for all property belonging to the department, and is the channel through which must pass all reports and official communications relating to departmental affairs.

Description of Section Room, Recitation, etc.

The description of a section room and recitation, etc., given for the mathematical department applies in a great degree to all the departments, especially to the departments of natural philosophy and engineering. In some of the other departments, in which the manner of conducting the recitations, etc., are materially different, the differences will be noted under said departments.

The section rooms occupied by the department of mathematics are on the second and third floors of the curtain of the Academy building. All are practically of the same dimensions, 22 by 23 feet, height of ceiling 11 feet, and each is lighted by two large windows. Upon the walls, in oak frames, their surfaces flush with the face of the frames, are twelve or fourteen slates, usually 4 feet by 3 feet 6 inches. When the wall spaces are long and unbroken, four or five of these slates are in a single frame; elsewhere they are framed singly or in pairs. They are all known by the generic name of "blackboards." From the lower part of each frame projects a shallow chalk tray, having at its bottom still shallower drawers, and above each drawer a galvanized wire grating. The chalk crayons and erasers, when not in use, are kept on the grating in the tray, while the dust which these implements always generate falls into the drawers below and is removed periodically. Still below the chalk trays are brass racks to support rulers and pointers.

On a platform, usually between the windows, is the

instructor's flat-topped desk, with a blackboard for his use behind it. Each member of a section is provided with a separate desk and chair, the latter of oak, the former having a sloping oak top, with a shallow receptacle beneath for books, resting on iron supports similar to those of a sewing machine.

ASSIGNMENT OF SEATS.

Seats are assigned by the instructor to members of a section in the order of their rank in the section, and usually in such manner that the section marcher shall be placed nearest the door.

NUMBER OF CADETS IN A SECTION.

Sections belonging to the upper parts of a class generally comprise eleven or twelve members, while the lower sections have but eight or ten. This difference in size between the upper and lower sections is to enable the instructor having the latter, to devote to each member a larger share of his personal attention.

In each section room is posted a copy of the regulations given below, from headquarters of the Academy:

1. The instructor shall be present when the section enters the room.

2. On entering the recitation room each Cadet shall proceed to the seat assigned to him and stand "attention" until the section marcher makes his report.

3. The section marcher shall enter the recitation room after the section, closing the door if the instructor be present; but in case he be absent the section shall be seated, the section marcher shall keep the door open, preserve order in the section, and at the end of two minutes report to the senior officer of the department present for instructions.

4. As soon as the report is made each member shall be seated and immediately record the next lesson, which shall be written on a blackboard or otherwise indicated by the instructor.

5. Each Cadet shall bring to the recitation room a lead pencil and only such books as may be indicated by the head of the department. Before anyone is called up for recitation the members of the section should ask for any information concerning points in the lesson which they have not been able to comprehend after diligent application, or should make any pertinent statement respecting lack of preparation.

6. The members of the section called up shall take boards in order as directed and write their names on the right-hand upper corner.

7. When prepared to recite, each Cadet shall provide himself with a pointer (in case one be needed), face the instructor, and stand "attention" on that side of his board farthest away from the central line of the room, unless otherwise directed. The pointer shall be held in the hand nearest the board and with the point down except when used to indicate work on the board.

8. Instructors shall require each Cadet to keep an upright, soldierly position of attention and to recite with deliberation, clearness, and correct language. Each Cadet while reciting shall, as far as practicable, face his instructor.

9. Instructors shall see that Cadets do not use their hands or pointers improperly, and shall endeavor to prevent them from acquiring any peculiar or nervous habits while reciting. They shall report any want of neatness in dress or appearance.

10. At the proper signal for dismissal the instructor shall cause all recitations to cease and immediately dismiss the section. For recitations terminating at 10.55 a. m., 12.53 p. m., and 3.59 p. m. the signal for dismissal is the recall sounded in the hall of the Academy building. For recitations terminating at 9.30 a. m., 12 m., and 3 p. m. the signal for dismissal is the assembly sounded in the area of barracks.

11. Upon the dismissal of the section the section marcher shall leave the room first and supervise the formation of the section outside.

12. Instructors shall report daily to the adjutant of the Academy, through the head of the department, all Cadets who have reported themselves as excused from recitation and any violation of regulations which may have come to their notice in the Academy building. Absences will be noted on the weekly class reports.

13. When an officer enters the section room the section shall rise and remain at "attention" until the officer be seated or otherwise indicate his pleasure. The instructor shall rise when the officer is senior to himself. At the discretion of a head of a department the compliment may be omitted when the officer leaves the room or reenters during the same recitation hour.

14. Instructors should bear in mind that the proper discipline of their section is largely determined by their own example and military bearing. Also, that the success of their instruction will depend in a great measure upon their patience, forbearance, and judicious assistance.

DESCRIPTION OF A RECITATION.

The 8 o'clock assembly having been sounded in the area of the barracks by the trumpeter, and the sections duly formed, each is marched by its section marcher to the proper room in the Academy building, where ranks are broken, caps hung on the hooks in the hall outside the door, and the members enter

the section room. The last to enter is the section marcher, who stands in the open door until the members of his section have passed to their desks, where each stands "attention." He then closes the door, faces the instructor, salutes, and reports "All are present, sir," or, "Cadet Blank is absent, sir," as the case may be. Occasionally this will be followed by a salute from some member of the section, accompanied by the report, "I am excused from recitation, sir." The instructor returns the salute and the Cadets take their seats, while he notes in his section book the absence of Cadet Blank or the fact that "Cadet Dash is excused from recitation." In the latter event he prepares later a report—"Cadet Dash, reporting himself excused from recitation in mathematics"—signs his name as reporting officer and submits it to the head of the department, who in turn forwards it to the adjutant, in whose office the fact involved is verified by inspection of the morning report of the post surgeon. The members of the section open their text-books, glance at the board behind the instructor, where the limits of the next lesson are recorded, make a note of its extent, and of such corrections of and additions to the text as the instructor may now give them. The instructor then asks: "Are there any questions on the day's lesson?"

At this time any member of the section is at liberty to ask for an explanation of such part of the lesson as he has been unable to comprehend, for the method of solving problems that may involve its principles, or to inquire into any development or extension of these principles.

For the purpose of making clear to the section the points thus brought up for explanation the instructor uses his judgment as to the time he should consume. When going over the text for the first time great latitude is permitted the section. Its members are encouraged to bring before the instructor the difficulties they encountered in the text, of whatever nature they may be, and, moreover, the instructor voluntarily elucidates such important features of the lesson as to his mind may prove stumbling-blocks to his pupils. In this way it is customary to consume at least half an hour each morning, and frequently the whole recitation period of one and one-half hours is occupied for purposes of instruction only. On

the other hand, when reviewing the text the time given to explanation is reduced to a minimum. Only such questions are answered as pertain to subjects overlooked or neglected when passing over the text before. The Cadets at this period are expected to recite upon the subjects in the lesson or to show their knowledge of its principles by applying them in the solution of examples and problems. Having cleared up all doubtful points of the lesson the instructor calls upon Mr. Asterisk, who takes his place, at attention, in front of the instructor's desk.

The instructor then formally enunciates for him a subject in the lesson, as, for example, if in algebra: "Deduce a rule for extracting the *n*th root of polynomials," or "Discuss the four forms of the quadratic equation." If in the calculus: "Define a point of inflexion; explain how to obtain critical values of the variables and how to test these values." Having heard the enunciation of his subject, Mr. Asterisk goes to the board known as the "first front board," generally the one on the left hand opposite the instructor, writes his name on the upper right-hand corner of it, and proceeds to place upon it the formulas, equations, and intermediate mathematical work necessary for a clear and complete demonstration or deduction of the subject assigned to him. No other writing is permitted upon the board. No erasure is allowed except by permission of the instructor. Tables of logarithms must be used for all computations.

In the meantime three other members of the section are called upon in turn and in a similar manner sent to the next three boards, in order, on the right of the one already occupied, each to discuss a subject in the lesson of the day. Following these, other members are called, each is given a card or slip of paper containing the data of certain problems or examples involving applications of the principles of the lesson, and each takes his place at one of the boards still remaining vacant, known as "side boards," and proceeds to the solution of the problem given. Having sent to the boards as many members of the section as desirable, and this is usually all but one, the instructor then calls upon one of the remaining members, whom he questions upon topics of the lesson of the day.

As soon as any Cadet at the board has completed his work he takes a pointer in his hand, faces his instructor, and stands attention until called upon to recite. The instructor finishes questioning the Cadet on the floor, permits him to take his seat, and marks opposite his name in the proper column of the section book his estimate, computed to a scale of 3, of the value of the recitation just completed. He then calls upon Mr. Asterisk, who, in response, enunciates the subject given him as follows: "I am required to deduce a rule for extracting the *n*th root of polynomials," or, "I am required to discuss the four forms of the quadratic equation," etc., and after giving any necessary preliminary definitions and explaining the significance of the quantities entering assumed formulæ or equations, passes step by step from this assumed data to the required conclusion. Ordinarily the work is placed upon the board in the same order it has in the text, and the recitation follows quite closely the lines of the text, yet this is not required; but any correct demonstration is accepted, provided it is made in clear and logical form. The recitation ended, the instructor usually asks Mr. Asterisk a few questions relating to the salient points of his subject in order to test the thoroughness of his knowledge of it, or he leads the Cadet, by questions, to contemplate some development or application of the subject not indicated in the text. A similar process is followed with each of the other Cadets at the front boards, and then the instructor turns to those having problems or examples at the side boards.

When the instructor is satisfied that the problem or example given is one of which the answer is unknown to the pupil, it is customary to require merely a statement of the problem and the result, although when time permits the solution is explained from beginning to end. If errors are committed they are traced to their source. As each Cadet finishes his recitation the instructor marks its value in the section book, as has been described.

When the trumpet sounds recall in the Academy building the instructor dismisses the section as the last note ceases. It is then formed in the hall by the section marcher and

marched by him to the area of barracks, where it is finally dismissed. The foregoing description applies to a recitation in algebra, trigonometry, analytical geometry, or the calculus, and its main features to a recitation in any other branch of the mathematical curriculum.

When teaching plane and solid geometry each Cadet is sent to the board to establish one or more propositions in the day's lesson and, in addition, is given a so-called extra—a problem or application depending upon the principles included in the lesson. Each morning the same set of extras is used in each section throughout the class, with the object of testing all parts of the class uniformly. Figures illustrative of principles or used for purposes of deduction must be drawn free-hand, that is, without aid of ruler or string; but when a construction is required from given data the ruler and string must be used and the figure must be as accurately drawn as is admissible with the implements at hand.

In the course of descriptive geometry the data for constructions at the side boards are given out, and the problems are drawn to the scale marked upon the rulers and on the upper edges of the chalk trays. Colored crayons are largely used, but always in accordance with a scheme. Frequently the instructor allows all or the greater portion of his section to remain seated, gives them the data of certain problems, and requires their construction upon sheets. With this contingency in view each Cadet is required to appear in the section room provided with a properly sharpened drawing pencil and a pair of dividers. Each desk is supplied with a ruler and triangle for the use of the Cadet occupying it. Cadets at the front boards, who are employed in the deduction of principles or in the explanation of the problems embraced in the lesson, are not permitted to place letters or figures upon their constructions, but must make them clear to the instructor by the proper use of the pointer. Occasionally in the course of descriptive geometry proper, and much more frequently in its applications to shades and shadows and to perspective, the data for the construction of problems at the desks are hectographed upon a sheet, thus saving the time

that would otherwise be lost in assuming the given magnitudes and enabling the Cadet to concentrate his attention upon the portions of the construction requiring the application of the principles of the lesson.

VISITS OF HEAD OF DEPARTMENT.

At intervals the head of the department visits each section, the frequency of the visits depending largely upon the class under instruction and the subject taught. For example, the fourth class when studying algebra receives his constant attention, not only for the purpose of watching the progress of its members, but to see that they acquire the proper methods of recitation. This same class when studying plane geometry or surveying is visited less frequently, while the third class, which is then devoting its efforts to the calculus, demands a large share of supervision. As a rule a portion of each morning is consumed by visits to the section rooms, where the professor listens to recitations, questions the pupils, and gives such instructions as he deems proper.

The following extracts are from a critical review of the mathematical course and method of instruction in comparison with former years and with other institutions, advantages, defects, etc., which was made by Professor Bass in 1896:

Previous to 1881 the recitations and examinations in mathematics were almost entirely oral. Demonstrations predominated largely over applications. Believing that both were essential, I introduced more examples and exercises into the course, with improved results.

About the same time I became convinced that oral examinations alone, in which each student had as a rule a single subject, were very unsatisfactory. The Academic Board received insufficient data from the examination, and the student regarded it largely as a matter of luck. Furthermore, there was no record of the examination work for after consideration in cases where questions as to facts and fairness subsequently arose.

The present method of requiring in all cases of doubtful proficiency, after an oral examination, a written one, embracing subjects and applications throughout the course, was then adopted, obviating to a great extent the defects of the former method. Written examinations, however, soon developed the fact that the method of exclusive oral recitations was faulty. Written recitations were then introduced, especially during reviews, so that the necessary instruction upon advance should

not be interrupted. The result has been extremely satisfactory, and I believe that the present system of combining written recitations and examinations with the oral compares favorably with that employed in any other similar institution.

I am convinced that the successful students acquire a better understanding of the principles than formerly, and the percentage of failures has of late years diminished.

I have endeavored to sustain the high standard established by my distinguished predecessor, Professor A. E. Church, and to introduce such improvements as time and experience naturally suggest. For the future I have several important plans and propositions to submit.

In the first place, I believe that for a four years' course too much time is employed in learning the course in pure mathematics. The course for the lower sections has not been increased during the last fourteen years, and is considered the minimum necessary for the proper study of philosophy, engineering, ordnance and gunnery, and drawing. The greater portion of the first two years is now employed in the study of mathematics. In order to diminish the time required daily for lessons in mathematics, I purpose recommending that the present method of going three times over such subjects as trigonometry and integral calculus, which consists mainly of formulas, be reduced to two—that is, an advance and one review only. The daily lessons could thus be shortened and ample time secured for such applications as would instruct the student in the use of formulas not important for training the mind, and which, as a rule, are soon forgotten.

I recommend that the instruction in surveying be made almost entirely practical. The principles employed are those of geometry and trigonometry.

The data should be taken by the pupil in the field and plotted by him. The latter requires drawing instruments and facilities only to be found in the department of drawing, and the best methods of delineation are more readily and thoroughly taught in that department. I would, therefore, go once over some good treatise, as Johnson's or Gillespie's, using it more as a book of reference than a text-book. Afterwards I would turn the subject over to the department of drawing for the practical work. With no mathematical lesson to study, two or three hours in the morning could be devoted to field work, and the data could be plotted in the drawing academy in the afternoon. The instructors of the class in mathematics would, of course, be available for the field work. The graduate would then obtain a better knowledge of surveying instruments and methods, and the student would have to devote less time daily to the study of the subject.

With the increased facilities which the new Academy building affords for lectures and explanations to large portions of a class together, I am able to give more students the benefit of my knowledge and experience

upon the more important points, especially during the advance. These changes, with a little knowledge of algebra at admission to the Academy, which I am convinced must soon be required, will enable me to shorten the lessons throughout the two years, thus affording more time daily for other purposes.

The advantages of the methods of instruction employed here are numerous. The classes are divided into small sections of 10 or 12 each, so that each Cadet is generally called upon daily to recite or receive instruction.

Generally two or three subjects only are studied at the same time.

The student is cut off from those pleasures and outside attractions which divert his mind and prevent concentration of thought. Regular hours of study and recreation, combined with wholesome food, promote good health and enable the pupil to acquire the best mental results from his efforts. He is also surrounded by studious associates and has little or no temptation to idleness.

Correct habits of study are continuously impressed upon him.

Instruction is always freely given when necessary, but the importance of self-reliance in acquiring knowledge is inculcated from the day of admission to the day of graduation.

* * * * * * *

Sympathy for the weak and a desire to assist them naturally impels a professor to give much of his time and instruction to pupils who are really doomed from the first to disappointment and failure.

At least half of my instruction is devoted to pupils who do not graduate. If valuable, it seems as though the graduate should have the benefit of more of a professor's experience.

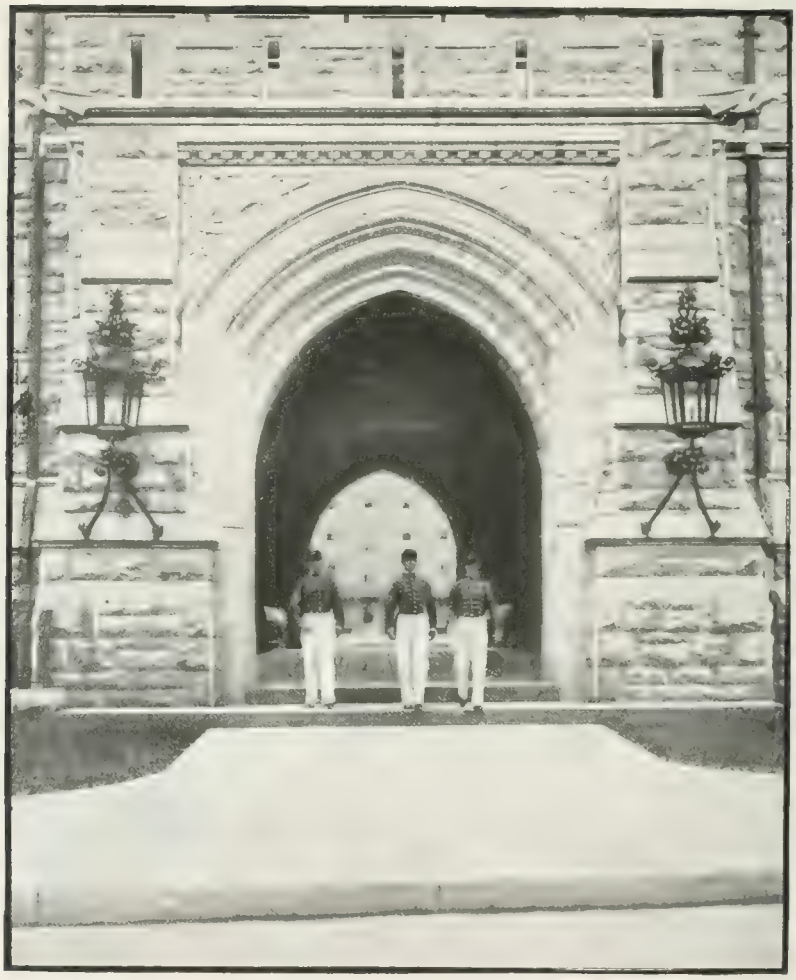
* * * * * * *

The object of this Academy is to furnish to the country a number of young men qualified in the fundamental principles of the science of war and fortification. While this science has advanced materially during the past quarter of a century, and the mathematical instruction has of necessity been extended to keep pace with the times, yet the necessary mathematics has a limit. The time available for its study is also fixed. Hence the mathematical instruction at West Point has assumed a conservative and moderate form of development.

* * * * * * *

The science of war in its broadest sense should form, direct, and fix the curriculum of this Academy.

I believe that for thoroughness of instruction upon the branches taught, for methods of imparting information, for instruction that sustains the interest of the student, for methods of developing correct habits of study and for acquiring knowledge quickly and accurately, there is no institution in any country which is superior to the U. S. Military Academy.



EAST SALLY PORT OF THE PRESENT (FOURTH) ACADEMIC BUILDING.

C (67)

1. Historical Sketch of the Department of Natural and Experimental Philosophy.

[The following history and discussion relating to the department of philosophy was prepared by Professor Michie in 1896, for the annual report of the Superintendent for that year. The matter is here introduced without material change, only a few omissions having been made.]

The origin of the department is found in the act of Congress, April 29, 1812, reorganizing the Military Academy, where provision was made for one professor and one assistant professor of natural and experimental philosophy. From the time of the foundation of the Academy, in 1802, till the passage of this act, natural philosophy constituted no part of the course of instruction, although occasionally some of the more advanced students were taught mechanics and practical astronomy from Enfield's Institutes of Natural Philosophy.

Four professors have administered this department since its establishment, and its history can probably be best outlined by considering each administration in succession.

(*a*) *Lieut. Col. Jared Mansfield, Corps of Engineers, professor from October 7, 1812, to August 31, 1828.*—Mansfield, after graduating at Yale College, taught mathematics, navigation, and the classics at New Haven and at Philadelphia. For the purpose of securing his services at the Military Academy, he was appointed captain of engineers in the Army May 3, 1802, and from this date till November 14, 1803, he served as acting professor of mathematics. He was then detached to do duty as surveyor-general of Ohio and the Northwest Territory, in which occupation he was engaged until October 7, 1812; in the meanwhile he had resigned his army commission, July 23, 1810. Although his appointment as professor of philosophy occurred October 7, 1812, he did not enter upon his duties until April 10, 1814.

The regulations approved July 2, 1816, by Secretary of War Crawford, provided for "philosophy; embracing mechanics, hydraulics, pneumatics, optics, chemistry, magnetism, and astronomy."

Enfield's Institutes of Natural Philosophy appears to have

been the first text-book used in this department for instruction. Up to the summer of 1817 the instruction in philosophy was of the most elementary character, "not a few graduates leaving the Academy without having had any instruction whatever therein. The only apparatus in the professor's possession to illustrate his subject were a field transit and a clock."

In the fall of 1818 a treatise on mechanics, by Dr. Olinthus Gregory, of the Royal Military Academy, Woolwich, was introduced and taught to the first section of the class. It was apparently too difficult for the second section, for we find recorded: "Cadet W. Morris, at present of the third, but late of the second class (having been reduced on account of inability to proceed in Gregory), prayed to be restored to the second section of the second class on the ground that that section would hereafter study only Enfield, in which he gave assurances of capacity to succeed."

From this time on the class was so arranged that the better qualified men were placed in the first section and the others in the second section. The sections contained nineteen or twenty men each and recited two hours.

Owing apparently to the unsatisfactory progress made in the study of philosophy, a committee consisting of Professor Mansfield and Assistant Professor Douglass was appointed to revise the course. Their report approved, and adopted by the Academic Board April 19, 1819, was as follows:

First: The first section, as now organized, to study and review the mechanics of Doctor Gregory, embracing the subjects of statics, dynamics, hydrostatics, hydrodynamics, and pneumatics in the first volume, the practical considerations in the second volume, and the description and theory of some of the most important machines; this part of the course to commence on the 1st of September and end at the commencement of the winter examination of this class in January.

Second: The second section in the same time to go through with a corresponding, but more easy and familiar, course of mechanics, including hydrostatics, hydraulics, and pneumatics. The text-book for this purpose it has not been in the power of the committee as yet to decide certainly upon. They have reason to believe, however, that Parkinson's Mechanics, of which they have ordered a copy from England, will be found suitable, and they propose a temporary course out of the books now on hand until this point can be determined.

Third: From the close of the winter examination to the 20th of February following, sooner or later, both sections to study Hauy's Philosophy. This will comprehend the subjects of optics, electricity, galvanism, magnetism, and meteorology.

Fourth: The remainder of the academic year, with the exception of one month for reviewing, to be devoted by both sections to a course of descriptive, physical, and practical astronomy, omitting only the more profound parts in the course for the second section. On this subject the committee have hopes of finding a suitable text-book in Woodhouse's Astronomy, a copy of which will be examined as soon as it can be received from England, and reported on in season for the next class.

Fifth: Should the genius and capacity of the first section be such in any instance as to afford a redundancy of time, the committee propose to conduct them through the more valuable portions of Newton's Principia (Davis's edition).

On the 29th of January, 1820, the Academic Board adopted a definite course in philosophy based upon the treatise of Doctor Gregory, as follows:

Statics.—Equilibrium of forces; center of gravity; mechanical powers; strength and stress of materials; theory of arches.

Dynamics.—Principles of uniform and variable motion; laws of falling bodies; motion of projectiles in vacuo; vibrations of pendulum; central forces and theory of planetary motion; percussion, and the phenomena of rotation of bodies.

Hydrostatics.—The pressure of fluids; specific gravity; theory of the stability of vessels.

Hydrodynamics and hydraulics.—Theory of effluent fluids; principles for estimating the force, motion, and resistance of fluids; application of these principles to the construction of water mills and other hydraulic works.

Pneumatics.—Compression, density, and elasticity of air; theory of acoustics; constitution of the atmosphere and physical causes of winds, etc.; measurement of heights by the barometer; theory of pumps.

Machinery.—Application of philosophical principles in the construction of the steam engine, pile engine, etc., and to the construction of the powers and maximum effects of machines. Experimental investigation of the properties of heat; experimental investigation of the principles of common and galvanic electricity; experimental investigation of the principles of magnetism.

Optics.—General principles of light and colors; refraction and reflection of light; theory and use of lenses; construction of optical instruments—as telescopes, microscopes, etc.

Astronomy (*descriptive and physical*).—General account of the solar system and of the celestial and terrestrial spheres; motions of the earth

and the various appearances and vicissitudes arising from them; solution of problems on the globes; figure of the earth; equation of time; motions, phases, and irregularities of the moon; eclipses of the sun and moon; theory of the tide; physical causes of the motion of the planets, satellites, and comets, and determination of their orbits; the fixed stars; theory of the corrections arising from parallax, refraction, aberration, precession, and nutation.

Practical astronomy.—Application of spherical trigonometry to astronomy; use of instruments and tables; observations for time, azimuth, etc.; different methods of determining geographical points; application of astronomy to navigation, and the construction of maps.

The instruction in natural philosophy, like that in mathematics, will be proportional in extent, and in the manner of conveying it to the rank and capacity of the different sections, reserving always the more abstruse and profound operations under each particular head to the higher sections.

This was certainly a very comprehensive course for the time, and the text-book employed was a remarkably good one.

It seems, however, that it proved too difficult for the lower section, as Bridge's Mechanics was adopted January 22, 1824, for the lower sections. Professor Mansfield was much beloved and respected by the Cadets and deemed an efficient instructor. He was extremely nearsighted and of such a delicate structure as to convey the idea of decrepitude. His manner was very gentle, and as a professor he was by no means rigid. As an astronomical observer he was quite renowned, and he had been engaged, before coming to the Academy, in extensive surveys of boundary lines.

(*b*) *Edward H. Courtenay, second lieutenant of engineers, acting professor from September 1, 1828, to February 16, 1829, and professor from February 16, 1829, to December 31, 1834.*—The points of special importance to be noted during the administration of Professor Courtenay are that the text-books were of a very high grade, involving the use of the calculus, and thus permitting the adoption of the analytic methods of investigation in place of the geometrical, previously employed, and the evolution of a course especially adapted to the needs of a military education. Courtenay was peculiarly fitted for this task, for he was exceptionably able, erudite, and clear in his methods of instruction. It was extremely unfortunate for the interests of the Academy that the needs of his growing

family forced him to seek more remunerative employment, for it is certain that his remarkable attainments would have left their impress upon its course of instruction as strikingly as did those of his colleague, Mahan, in the engineering course.

(*c*) *William H. C. Bartlett, second lieutenant of engineers, acting professor from November 22, 1834, to April 20, 1836, and professor from April 20, 1836, to February 14, 1871.*—The administration of Professor Bartlett, extending as it did over more than thirty-six years, exhibits some abrupt changes of methods of instruction and of text-books, until about the year 1857, when the course had been crystallized to satisfy his conception of its scope and character. Bartlett's treatise on optics replaced Brewster's February 26, 1839, and Rochet's treatises on magnetism, electro-magnetism, and electro-dyamics replaced the "Library of useful knowledge," from which these subjects had been previously taught.

The "Programme of the course of instruction in natural and experimental philosophy," adopted by the Academic Board March 13, 1840, is essentially the same as the tables of contents of Courtenay's Boucharlat, Bartlett's Optics, Gummere's Astronomy, and the treatises of Doctor Rochet. Apparatus for the experimental illustration of the principles of natural philosophy was purchased from time to time, so that by the date of the establishment of the course referred to above, Professor Bartlett was enabled to give instructive experimental lectures to his classes. The Ertel transit instrument, 72-inch focal length, 52 lines (French) aperture, was ordered November 7, 1842, and after completion was mounted in the east tower of the new library and observatory building. Subsequently a Fitz equatorial and a Troughton mural circle were mounted in the middle and west towers, respectively, thus providing an excellent equipment for observational astronomy.

For more than thirty years, and up to the autumn of 1850, the philosophical course had been based upon a knowledge of the differential and integral calculus, but for some reason that does not appear Bartlett recommended a text-book which he had prepared, based upon Poncelet's work entitled "Synthetical Mechanics," to replace Courtenay's Boucharlat. This recommendation was approved and the book adopted September 6,

1850. It was considered by some members of the Academic Board as a lowering of the high standard heretofore maintained at the Military Academy in the scientific courses. When Bartlett's Optics and Acoustics was proposed as a substitute for Bartlett's Optics, September 13, 1852, the professor of engineering and the instructor of practical engineering submitted written papers in opposition to this change (see staff records, September 27, 1852), basing their objections upon the omission of the analytical methods of treatment and the use of the calculus in the new text-book. Notwithstanding these protests the Academic Board recommended the adoption of the book, and the War Department approved the action of the Board. The following resolutions, submitted by the professor of engineering, were made a matter of record:

Resolved, first: That the present Academic Board fully concur in the views and opinions expressed in a report of the Academic Board October 18, 1843, on the subject of the scientific instruction in the U. S. Military Academy, viz, "With these views, and in the firm belief that the Government, having the opportunity of securing from a large body of the youth of the country, ought and is disposed to fix a high standard of talent and attainments for those who would secure the important advantages resulting from a term of study at the Academy, the Board are unwilling to unite in any recommendation that a less extensive scientific course than the one now taught should be adopted for any of the Cadets."

Resolved, second: That in accordance with the spirit of the language above cited, the present Board regard the method of the higher analysis as the best means of treating most of the subjects embraced in the branches of mechanics, optics, etc., and regard them as indispensable elements in the composition of any text-books for instruction in these branches, to the end that such books may be, in the spirit of paragraph 11, U. S. Military Academy Regulations, "the class books best suited for instruction in the department of natural and experimental philosophy."

Resolved, third: That the attainments made by the Cadets in analytical geometry and the differential and integral calculus are sufficient to enable them to acquire understandingly the elements of natural and experimental philosophy as treated by these methods in the best text-books on these subjects.

Though no formal action was taken on this paper, it, in connection with the protests of those members of the Academic Board who had pronounced in favor of a higher standard,

undoubtedly had a strong influence in bringing about a marked change in the character of the text-books, for on the 29th of August, 1853, the Academic Board, on the recommendation of the professor of philosophy, adopted the following resolution:

> *Resolved*: That it is hereby recommended to the Secretary of War to authorize the use of Bartlett's Elements of Analytical Mechanics as a text-book upon mechanics in the place of the one now in use, the reason for this recommendation being that in the new work the calculus is employed as the means of discussion, whereas in the old one the subject is treated mostly by the aid of geometry.

Gummere's Astronomy was superseded by Bartlett's Spherical Astronomy September 5, 1855, and this was the last change of text-books that occurred during Bartlett's administration, except to replace from time to time an old edition by a new one. A very important modification of the course was made, however, December 8, 1856, upon the recommendation of a committee of the Board by which the subject of electricity was transferred to the department of chemistry on the ground that "it was more immediately connected with chemistry than with the course where it is now taught, and in the expectation that in this way time may be found to make the present course of electricity more complete."

Professor Bartlett's long service at the Military Academy ended February 14, 1871, by his voluntary retirement at the age of 62 years. He left a permanent impress of his marked ability upon his course of instruction and enriched it with certain important characteristics that are certain to endure for many years. He possessed the rare faculty of perceiving essential and fundamental principles and of being able to formulate them by a mathematical expression of a single law from which the whole of analytical mechanics could be deduced. As early as 1853, in the preface to his work on analytical mechanics, he published this great generalization: "All physical phenomena are but the necessary results of a perpetual conflict of equal and opposing forces, and the mathematical formula expressive of the laws of this conflict must involve the whole doctrine of mechanics. The study of mechanics should, therefore, be made to consist simply in the discussion

of this formula, and in it should be sought the explanation of all effects that arise from the action of forces." This law is now generally recognized as that of the conservation of energy, and too much credit can not be given to Professor Bartlett for the clear perception which enabled him to anticipate by so many years the introduction of this great law of generalization in the course of instruction at the Military Academy before it was adopted in the schools. He considered this as his greatest contribution to the course of instruction, and in this opinion the great body of his pupils heartily concur. Professor Bartlett had the gift of being able to engage the respect and affection of his pupils. He was very happy in his illustrative lectures, which were known as "experiments," and which he employed mainly to fix principles in the minds of his pupils. His mind was essentially analytic in character, but at the same time capable of enlarged generalization. In his later years he discarded those geometrical methods of proof which so markedly characterized the earlier years of his teaching, replacing them wherever possible by analytic methods. He left his department well equipped with apparatus for experimental illustration of the principles taught in his course for that time, and his successor found nothing that needed immediate modification in the course.

(*d*) *Peter S. Michie, captain, Corps of Engineers, professor of philosophy from February 14, 1871, to the present time.*—The changes under the administration of Professor Michie were as follows:

On June 26, 1874, the ninth edition of Bartlett's Mechanics was adopted, as this edition contained important modifications which adapted it better to modern scientific usage, without sacrificing the excellent scientific treatment of former editions. Again, on June 10, 1876, Part 3 or Mechanics of Molecules, was authorized to be taught in place of the corresponding parts of the text in Optics and Acoustics.

A text-book on wave motion prepared by Professor Michie, relating to the principles of sound and light, was submitted to the critical examination of a committee of the Academic Board November 1, 1881, consisting of the professors of

French, engineering, mathematics, and chemistry. The favorable indorsement of this book by the committee resulted in the substitution of it for Bartlett's Mechanics of Molecules and the Optics and Acoustics for use with the second class in the spring of 1882.

Michie's Elements of Analytical Mechanics superseded the corresponding parts of Bartlett's (parts 1 and 4) June 21, 1886, and the second edition replaced the first August 29, 1887. Michie's Hydrodynamics, adopted November 7, 1887, replaced Part 2 of Bartlett's Mechanics, which latter book ceased from this time to be a text-book at the Military Academy. The third edition of Michie's Mechanics was adopted September 4, 1888, which was subsequently superseded by the fourth edition.

The adoption of Professor Young's General Astronomy to be used in connection with Bartlett's Spherical Astronomy was approved February 5, 1889; and finally that part of the latter book which had been retained was superseded by Michie and Harlow's Practical Astronomy April 30, 1891, and the latter by its second edition March 16, 1893. An addition was made to the course of instruction, by reason of these changes, in the following provision: "Practical instruction shall be given to the first class in the use of astronomical instruments and in making observations for time, latitude, longitude, and true meridian, from 9 to 10.30 a. m., and from 11.30 a. m. to 12.15 p. m., and on such nights as are favorable for observations from 8 p. m. to 10.30 p. m. on every week day from July 5 to July 31, both inclusive."

(2) The present course (1896) consists of—

(*a*) *Analytical mechanics.*—Text-book, Michie's Elements of Analytical Mechanics, divided into the subheads of mechanics of solids, of fluids, and theory of machines.

Wave motion, acoustics, and optics.—Text-book, Michie's Elements of Wave Motion Relating to Sound and Light.

General astronomy.—Text-book, Young's General Astronomy.

Practical astronomy.—Text-book, Michie and Harlow's Practical Astronomy.

In mechanics lectures are given as follows:

(*a*) Introductory to the science; its fundamental concepts, assumptions, and definitions.

(*b*) Parallelogram of forces; methods of resolving and combining forces; bodies under stress, etc.

(*c*) Parallel forces, couples, moments and their composition and resolution.

(*d*) Impulsions and impact.

(*e*) Acceleration and laws of constant forces.

(*f*) Rotary motion, angular velocity, and acceleration.

(*g*) Constrained motion, spontaneous axis, pendulums.

(*h*) Machines.

(*i*) Laws of the gaseous state.

(*j*) Hydrostatics, buoyant effort, etc.

(*k*) Hydrodynamics, flow of liquids, Torricelli's and Bernouilli's laws.

(*l*) Air and water pumps, hydraulic ram, etc.

In addition to these, one or more sections, or the whole class is frequently brought into the lecture room from the recitation rooms to have some particular illustration given, as the necessity arises.

(2) In sound and light the lectures are as follows:

(*a*) Methods of transfer of vibratory energy; properties of sound; vibrational numbers.

(*b*) Musical intervals, consonant and dissonant; diatonic and harmonic scales; sympathetic resonance.

(*c*) Scheibler's tonometer; analysis and composition of tones; use of Helmholtz's resonators.

(*d*) Harmonic overtones; velocity of sound in different material; organ pipes.

(*e*) Vibrations of plates, bells, strings, rods, etc.; Lissajous's curves.

(*f*) Theory of beats and resultant sounds; phenomena of interference.

(*g*) Graphical and optical methods of the study of sound.

(*h*) Introductory to light; pencils, beams, and formation of images through small apertures.

(*i*) Reflection and refraction of light by prisms, lenses, and reflectors.

(*j*) Determination of focal distances; caustics; astigmatism.

(*k*) Telescopes, microscopes, and the cameras.

(*l*) The solar spectrum; color by dispersion and diffraction; absorption.

(*m*) Fluorescence; achromatism; the rainbow.

(*n*) Interference of light by Fresnel's mirrors; phenomena of diffraction.

(*o*) Polarization by double refraction, by reflection, refraction, and by the Nicol prism.

(*p*) Interference of polarized light and production of color.

(*q*) Uniaxal and biaxal crystals, rotatory polarization and saccharimetry.

Hours of study, etc.: In the department of philosophy the lessons are so proportioned as to require from three to three and one-half hours of study for preparation for each lesson, and one and one-half hours for recitation in the section room. There are six recitations per week throughout the year.

3. Organization of the Department of Philosophy.

One professor, one assistant professor, and one or more instructors, depending upon the number of Cadets in the class. Each section contains not more than 12 Cadets, and each instructor has charge of two sections, thus requiring of him three hours' of personal instruction daily. To the assistant professor it is usual to assign the instruction of the first and last sections, and to the other instructors the remaining sections, according to their rank. In addition to the instructors above mentioned the officer in charge of the observatory conducts the instruction in practical astronomy, under the direction of the professor of philosophy.

Examinations.

The character of the examinations, whether they are to be written or oral, has been left to the decision of the head of the department, and while written examinations have been tried in the department of philosophy, in the opinion of the present head the oral method is much the better when the method of instruction is considered. By this method his colleagues on the Academic Board are kept informed of the

progress of the department, the attainments of the instructors, and the thoroughness of instruction; besides these advantages, the opportunity of a close cross-examination upon doubtful points can be had and thus bring out the mental operations of the pupil, an advantage which a mere written test does not afford. In cases of doubtful proficiency the rule of the Academic Board is to subject such cases to a thorough written test after a doubtful oral examination. The subjects selected for an oral examination cover the entire course, and to make the choice impartial, they are drawn by lot by each Cadet as he is called up. The weight of each oral examination is equal to that of five ordinary recitations. To determine the relative standing of the class in each subject of the course, the following method is pursued: To the aggregate obtained on the advance and first review add double the marks of the general review, and to this add five times the examination mark. The standard for proficiency has of late years come to be considered to be two-thirds of the possible maximum, especially if this be reached on the general review.

Critical Review of the Course and Instruction.

"The writer, when he was appointed a Cadet, was old enough to appreciate the value in mental training and the sound educational advantages derived from the methods of instruction pursued at the Military Academy. Graduating during the war, he found himself within a fortnight in charge of important military duties where he was thrown upon his own resources, and in every case he found that the methods of reasoning in which he had been trained here and the self-reliance which had been inculcated in him by the methods of study were sufficient to solve his problems to the satisfaction of his superior officers. Since those days he has had a long experience as a teacher, and has kept constantly in mind his own efforts as an ambitious young officer as well as the purpose of the Government in establishing this institution. He believes that the elements of character developed in the student by the course of instruction at the Military Academy are increased confidence in his own powers, reliance on his own

individual effort, and capacity to test accurately his sources of information. These elements in the development of a man are of essential importance in a profession where he may be called upon in emergencies to exercise self-control and to meet manfully unforeseen difficulties. To accomplish these purposes the daily tasks are made of the requisite length to demand all the study time allotted, and thus are secured the invaluable mental effort and discipline derived from hard study; second, the daily tasks made progressive, based upon accepted fundamental principles, continually exercise the reason, beget a growing confidence, and establish a belief in his ability to master every new difficulty; and finally, when the course is completed, the student finds himself equipped with a satisfactory knowledge of the essential principles of the branch of science, to which he may add by individual study without feeling the necessity of reconstructing his foundation. These the undersigned believes to be the true governing principles of all sound education. The course in philosophy has grown from the time of its first establishment, keeping pace with each new development of scientific truth and discarding that which could not stand the test of experience, and yet has always maintained a conservative character. It may be said, in conclusion that, taking into consideration the object of the Military Academy, it does not seem possible to suggest any material change in the methods of instruction, the subjects taught, or appliances of instruction that would prove of substantial benefit."

On February 16, 1901, Colonel Michie died, after thirty years' conspicuous service as the head of this department. Up to the time of his death and since 1896 no material changes have been made in the course of study or methods of the department. Professor Michie was succeeded by Captain William B. Gordon, Ordnance Department, March 27, 1901. At the time of present writing Professor Gordon has in view and under preparation certain material changes in the manner of presenting the principles of the subjects of his department and in the methods to be followed in the instruction. At the request of Professor Gordon the practical instruction

in the use of astronomical instruments has been transferred to the academic year, instead of being given during the summer encampment as heretofore. By the revision of the academic curriculum which goes into effect September, 1902, the department of philosophy yields about 6 per cent of its time to the department of chemistry. Captain Gordon is a graduate of the Academy of the Class of 1877, and prior to his appointment had served six years as assistant professor in the department, his last term of service having terminated in 1898.

D.

HISTORICAL SKETCH OF THE DEPARTMENT OF ENGINEERING

[The following historical sketch and discussion relating to the department of civil and military engineering were prepared by Professor Gustave G. Fiebeger in 1896 for the report of the Superintendent for that year. For use here certain omissions are made, but the sketch is not otherwise changed.]

Since the department has been under the charge of Professor Fiebeger he has prepared a new text-book on Civil Engineering to replace Wheeler's Civil Engineering and Mahan's Stone Cutting. This book will be published in the near future. In the military course he has written a new textbook to replace Wheeler's Field Fortification, and a pamphlet to replace Mercur's Permanent Fortification. Fortification drawing has been replaced by a more extended study of the art of war. For this purpose Mercur's Art of War has been temporarily replaced by Wagner's Organization and Tactics and Security and Information, which have been supplemented by pamphlets on Strategy and Notable Campaigns and Battles. In 1902 this course was extended by an annual visit to one of the great battlefields of the civil war, after a careful study of the same in the section-room. The field visited that year was Gettysburg.

The principal change which it is hoped to make in the future is the establishment of a testing laboratory for practical work to supplement the section-room work in civil engineering.

VIEW OF WEST POINT, 1854.

Part I.

Some time during the years 1795 to 1798, while the regiment of Artillerists and Engineers was stationed at West Point, Colonel Rochefontaine and Captain Rivardi, formerly of the French army, constructed a small model front of a fortification.

Upon the establishment of the Military Academy, by act of Congress dated March 16, 1802, instruction in military engineering began at once, and the elements of fortification were taught by the use of this model.

Until 1818 the instruction in military engineering was by means of lectures illustrated by the model above mentioned and by field exercises in practical engineering. The lectures were delivered by the Superintendent until 1808, by the teacher of French, Francis O. Masson, from 1808 to 1813, and after that by the professor of engineering.

The only text-book in use was a small pamphlet of 50 pages, translated from the French by Colonel Jonathan Williams, Corps of Engineers, the first Superintendent.

The department of engineering was established by an act of Congress of April 29, 1812:

Sec. 2. *And be it further enacted*, That the Military Academy shall consist of the Corps of Engineers and the following professors: * * * one professor of the art of engineering in all its branches; * * * and each of the foregoing professors shall have an assistant professor, taken from the most prominent characters of the officers or Cadets.

* * * * * * *

Under this act Captain Alden Partridge, Corps of Engineers, was appointed professor of engineering, September 1, 1813.

Captain Partridge graduated from the Military Academy October 30, 1806, and was assigned to the Corps of Engineers. He served at the Academy as assistant professor of mathematics November 4, 1806, to June 5, 1811; as principal assistant professor of same April 29, 1812, to September 1, 1813; as professor of engineering September 1, 1813, to December 31, 1816. Much of the time while he was professor of engineering he was also Superintendent of the Academy, and therefore gave little attention to the work of his department.

General Cullum, in his history, gives the following as the state of the instruction in engineering at this time:

> Engineering was less attended to than French or drawing, the greater number of Cadets on graduating never having gone beyond the definitions to be found in Colonel Williams's little primer of 50 pages on the subject, which was their only text-book. Many Cadets scarce knew the difference between the ditch and the glacis of a fort save by the conventional colors adopted in their delineation. It is said that two Cadets were graduated in 1815 in the Engineer Corps whose studies never extended beyond Hutton's Trigomometry.

Captain Partridge was, on March 16, 1817, succeeded by Professor Claude Crozet, who had been assistant professor of engineering since October 1, 1816.

Professor Crozet was born in France and was educated at the Polytechnic School. He introduced descriptive geometry as a necessary preliminary to the proper study of engineering, made much use of the blackboard in demonstrations, and seems to have made use, as far as practicable, of the methods of the Polytechnic School in developing and teaching the course of engineering.

The work of all the departments in the Academy was at this time (1817) greatly aided by the reforms instituted by the new Superintendent, Major Sylvanus Thayer.

In 1818 there was introduced as a text-book in the department A Treatise on the Science of War and Fortification, by Colonel de Vernon, professor of fortification in the Polytechnic School, France, and translated by Capt. John M. O'Connor, U. S. Artillery. This excellent work was used until the introduction of the works of Professor Mahan. The original text had been submitted to the revision of a board of distinguished marshals and engineers, and then, by order of Emperor Napoleon I, was adopted as a text-book of the Polytechnic and Military School of France. It was in two volumes, with a volume of plates. The first treated of the science of war in general and field fortification; the second of permanent fortification, and in an appendix was given a summary of the principles and maxims of grand tactics and operations.

The staff records for 1819 indicate the method in which it was studied.

1. The class of the fourth year (the first in rank) to be divided for instruction in the military course into two sections, after the manner practiced in the other classes of the institution.

2. The first section to be instructed in the entire course of engineering, military science, and grand tactics in the book now used, and to be required to execute a series of drawings and plans connected with these subjects, this course to begin on the 1st of September of each year and to end on the 20th of March next ensuing, sooner or later.

3. The second section to be taught in connection with military science and grand tactics, field engineering only, the whole of which will be comprised in the first volume and appendix to the work.

The other books used in the course were in French, and probably used only as aids to a course of lectures or as books of reference. They were: Program d'un Cours de Construction par Sganzin, translated in 1827, and Traité des Machines par Hachette.

The regulations of 1821 indicate that at this time the professor of engineering taught some of the sections himself.

The professor of * * * engineering, in order to ascertain the proficiency of the sections intrusted immediately to the assistants and the manner in which they have performed their duty, shall occasionally, and in rotation when there are more than two sections, instruct the sections intrusted to his assistants, the period for which shall be fixed by the academic staff and reported to the War Department; and the assistant professor, when the professor has his section under instruction, shall take charge of the section usually under instruction of the latter.

Professor David B. Douglass on May 1, 1823, succeeded Professor Crozet, who resigned April 28, 1823.

Professor Douglass was appointed second lieutenant, Corps of Engineers, August 1, 1813. He served at the Academy as assistant professor of natural and experimental philosophy June 1, 1815, to August 29, 1820; as professor of mathematics August 29, 1820, to May 1, 1823, and as professor of engineering May 1, 1823, to March 1, 1831.

The records are not definite as to what was accomplished during his incumbency, but it appears that the instruction in civil engineering was much improved.

Professor Douglass resigned March 1, 1831, and was succeeded by Professor Dennis H. Mahan January 1, 1832.

Professor Mahan graduated from the Academy July 1,

1824, and was assigned to the Corps of Engineers. He served at the Academy as assistant professor of mathematics August 29, 1824, to August 31, 1825, and as acting professor of engineering September 1, 1830, to January 1, 1832. Between 1825 and 1830 he spent four years in Europe studying public works and military institutions, and was, during one of these years, a pupil in the military school of application for engineers and artillerists at Metz, France. The first work of Professor Mahan was to prepare a suitable set of text-books for his department; he temporarily supplied their places by lectures and his notes made while abroad.

The first record of a complete set of text-books is found in the register of 1841, and is as follows: Mahan's Treatise on Field Fortification, Mahan's Lithographic Notes on Permanent Fortification, Mahan's Lithographic Notes on Attack and Defense, Mahan's Lithographic Notes on Mines and other Accessories, Mahan's Lithographic Notes on Composition of Armies and Strategy, Mahan's Course in Civil Engineering, Mahan's Lithographic Notes on Architecture and Stone Cutting, Mahan's Lithographic Notes on Machines (for first section only). These books, frequently revised, constituted the basis of the course of engineering during the time of Professor Mahan. In 1848 he introduced Mahan's Advanced Guard and Outposts; in 1858, Moseley's Mechanics of Engineering, and in 1870 Mahan's Industrial Drawing.

The instruction was confined to the fourth, or first-class, year, except during the years 1858 to 1860. The classes of 1859 and 1860 studied civil engineering during the second-class year, and the class of May, 1861, had no instruction in civil engineering.

No records are available giving a description of the methods of instruction, etc., which were in use during the entire time of Professor Mahan. Professor Mercur states that in 1865–66, when he was a student, the classes were divided into sections of ten to twelve men each, each section receiving instruction for one and a half hours daily between 8 and 11 o'clock a. m. When engaged in drawing the entire class attended daily from 8 to 11 o'clock. Each section was under the immediate charge of an officer, usually of the Corps of Engineers, as

instructor. The professor visited the sections daily, listening to the recitations, asking questions, making such comments and remarks and giving such additional instruction as seemed to him necessary and desirable. By this means he gained a knowledge of the capacity of the instructors, their methods of teaching and marking, and was also able to compare the individual Cadets.

But few lectures were given by Professor Mahan, and these were restricted almost entirely to short descriptions of campaigns and battles, with criticisms upon the tactical positions involved. The greater portion of his oral and personal instruction was given to the Cadets during his visits to the section room.

The course of engineering drawing included the accurate construction of a number of problems contained in fortification drawing and stereotomy, drawings of a canal lock in plan, section, and elevation, and the plan, section, and elevation of a half front of fortification, Noizet's Method. The canal lock and Noizet's Method were finished as completely as time allowed, and the sections, slopes, etc., were usually tinted in water colors.

Upon the death of Professor Mahan, September 16, 1871, Professor Junius B. Wheeler was appointed September 29, 1871.

Professor Wheeler graduated from the Military Academy July 1, 1855; was first assigned to the cavalry and afterwards transferred to the topographical engineers. He served at the Academy as acting assistant professor of mathematics October 5, 1859, to April 27, 1861, and assistant professor of same September 5, 1861, to June 18, 1863.

During his incumbency the course and method of instruction established by Professor Mahan remained unchanged in its essential features. Professor Mahan's text-books were revised, new material added, and portions omitted. In engineering drawing roof and bridge trusses were substituted for the canal lock and other problems, and the Noizet front was slightly changed.

Professor Wheeler retired September 29, 1884, and was succeeded by Professor James Mercur September 29, 1884.

Professor Mercur graduated from the Academy June 18, 1866, and was assigned to the Corps of Engineers. He served at the Academy as acting assistant professor of natural and experimental philosophy August 31, 1867, to February 21, 1870, and as assistant professor in the same February 21, 1870, to July 31, 1872.

In notes left by him, Professor Mercur states that under his direction no radical change was made either in course or methods of instruction. He revised the text-books previously used to conform to modern engineering practice and the advance in the science and art of war. A description of his methods of instruction is found in parts 2 to 6 of this chapter.

Professor Mercur died April 21, 1896, and was succeeded May 26, 1896, by Professor G. J. Fiebeger, who was then a captain of engineers and was a graduate of the class of 1879.

As a lieutenant of engineers he served as assistant professor of engineering at the Academy from 1883 to 1888.

Part 2.

The course in the department of civil and military engineering is, as the name implies, divided distinctly into two parts, viz: Civil engineering, which occupies the first term of the Academic year, from September 1 to December 31; and military engineering and the art and science of war, to which is allotted the second term of the Academic year, from the completion of the semiannual examinations in January to May 31.

Throughout the course recitations in this department are daily on week days from 8 a. m. to 11 a. m., one-half of the class reciting from 8 to 9.30 and the other half from 9.30 to 11, except during the time allotted to engineering drawing, when the entire class attends from 8 to 11 a. m., with an intermission of about eight minutes at 9.30.

It is arranged that three hours of study in preparation for each recitation may be allowed and required.

Civil engineering, September 1 to December 31.—Text-books: Civil Engineering, Wheeler (John Wiley & Sons, New York, 1884), and Fortification and Stone Cutting,

Mahan (John Wiley & Sons, New York, 1893). The subjects treated in Wheeler's Civil Engineering are as follows, viz: Building materials, strength of materials, framing, masonry, foundations, bridges, roofs, roads, railroads, and canals. This text-book has received from time to time numerous corrections and additions, which are given to the Cadets in the form of printed sheets and pamphlets, with a view to keeping this course of instruction in accord with modern developments and methods in the science and art of engineering. At the same time, portions of the text that have become obsolete or which it is thought may be more satisfactorily presented have been omitted.

In this connection may be mentioned, besides minor corrections, a new treatment of the rolling load, also of the pressures sustained by retaining walls and of the loads on bridges and their effects. The subject of the graphical determination of stresses in framed structures is extended and improved, and there are issued to the Cadets the following pamphlets, viz: Rivets, Riveted Joints, Pin-connected Joints, and Riveted Girders; Instructions for Truss Computations, and Notes on the Determination of Stresses in Trusses. The first of these takes the place of similar subjects in the text; the other two are for reference and assistance in the solution of problems.

That portion only of Mahan's Fortification and Stone Cutting which relates to the latter subject (stone cutting) is included in the course in civil engineering.

Civil engineering drawing includes generally for the upper part of the class the computations and drawings for an iron or steel highway or railroad bridge and for the lower part an iron or steel roof truss. The time devoted to this drawing is from about November 20 to about December 11, or from eighteen to twenty working days.

The higher sections finish the text-book in civil engineering in 40 lessons in advance, while the lower sections take 42 lessons in the same subject. This enables the higher sections to devote more time to stone cutting than the lower, the numbers of advance lessons being $5\frac{1}{2}$ and 3, respectively, for the higher and lower sections.

This is the only difference in the courses of the upper and lower parts of the class, except that many subjects are more fully developed by the higher sections and that their problem in engineering drawing is more difficult.

When a class has advanced about 18 lessons in civil engineering, a lecture is delivered by the head of the department on "The materials of construction, the use of engineering formulæ, and the limitations and possibilities of the science of engineering." No other lecture is delivered during this course. The Cadets of the first class are, however, given an opportunity to examine the models and engineering apparatus in the model room, with their instructors, who explain the construction and operation of the structures shown.

Military engineering, January 1 to May 31, first class.—Text-books: Elements of Field Fortifications, Wheeler (D. Van Nostrand, New York, 1882); Mahan's Permanent Fortifications, Mercur (John Wiley & Sons, New York, 1894); Attack of Fortified Places, Mercur (John Wiley & Sons, New York, 1894); Elements of the Art of War, Mercur (John Wiley & Sons, New York, 1894); Fortifications and Stone Cutting, Mahan (John Wiley & Sons, New York, 1893), of which only that portion which treats of methods of fortification drawing is included in this course.

In addition to the above there are issued to the Cadets of the first class, by the department, pamphlets containing some twenty descriptions of battles, campaigns, and other operations of war, to be studied by the Cadets and used to illustrate the principles that are taught in the text-books. With the pamphlets are maps and plates showing the battle-fields and theaters of operations described in the pamphlet.

Under the head of field fortifications the subject-matter treated is as follows: General principles and definitions, profile, trace, kinds of field works and lines, size and garrison, construction, revetments, defilade, interior arrangements, ditch defense, obstacles, works on irregular sites, bridge heads, hasty intrenchments, attack and defense of field fortifications, communications, and transportation.

Permanent fortifications is treated under the following heads: Profile, open and covered defenses, communications, enceintes, outworks, advanced and detached works, retrenchments, systems and methods of fortification, existing German fortifications, detached forts, works on irregular sites, defilement of permanent works, accessory means of defense, seacoast defense, defensive organization of frontiers, progress of defensive methods, progress in methods of attack, modern construction in iron and steel.

In the attack of fortified places there is described, in part 1, blockade, surprise, assault, bombardment, siege works, including tools, etc., trenches, approaches, parallels, saps, etc.; tracing and construction of trenches and saps, siege batteries and magazines, siege operations, defense against a regular siege, siege parks, depots, etc.; and in part 2 (military mining) is given the nomenclature and theory of mines, galleries and shafts, ventilation, loading and firing, organization and tactics of mines, and demolitions.

The art of war is discussed under the following headings: Army organization and discipline, tactics, minor tactics in relation to logistics, grand tactics, minor operations, logistics, and strategy.

Recitations in this course begin each year about January 10 or 11, pursuant to an order from the Superintendent for the resumption of recitations after the completion of the semi-annual examinations, and continue daily, Sundays excepted, until May 31, except during the time devoted to fortification drawing, from about March 20 to about April 23, when the entire class attends in the engineering drawing rooms from 8 to 11 a. m.

This drawing consists in the application of the methods of fortification drawing to the construction of plan, sections, and elevations of a detached fort for an intrenched camp.

The time of recitation of a section in this course is divided and apportioned in the same manner as in the course in civil engineering, hereinbefore described, to which I would respectfully refer.

The course in military engineering is the same for all sections, except that some subjects are more fully developed by the higher sections than by the lower, and in fortification drawing the higher sections more nearly complete the sections and elevations of the work, whereas the lower sections usually finish only the plan.

At the end of the course a lecture has been delivered by the head of the department on the applications and use that may be made in the military service of the principles and methods taught in this course, with some remarks on courses of reading and study that may be profitably followed by graduates of the Military Academy. The descriptions of campaigns and battles were put in printed form in the pamphlet previously referred to to serve in lieu of lecture notes.

These are given out as a part of and in addition to the regular lessons, at the rate of one or two per week, depending on their lengths, and form subjects for recitation in the section room. An opportunity is given to the class to visit the engineering museum and model room under the supervision of their instructors, who explain the models and apparatus and answer the questions of the Cadets concerning them.

Part 3.—Organization of Department—Number of Instructors—Division of Duties.

The department of civil and military engineering is organized as follows: One professor, head of the department; three instructors, of whom the senior in rank is appointed by the Superintendent to be assistant professor; one draftsman, employed by the department.

The professor of civil and military engineering administers the affairs, executes the business, and, subject to the approval of the Superintendent of the Academy, controls the policy and regulates the methods of the department. He recommends the text-books to be used in the course, revising and correcting them when advisable, prescribes the lessons, apportions the time to the various subjects, and, in order to insure uniformity and efficiency in the work of the department, supervises the instruction of Cadets by frequent personal inspections of the progress and methods of his assistants.

There are also provided through his recommendation the necessary books of reference, apparatus, models, maps, materials, and supplies for the use of the department and the instruction of Cadets.

The assistant professor, in addition to his duties as instructor, is charged with the care of the property of the department, and attends to the issuing and collecting of the books, pamphlets, maps, models, samples, and other articles used in section rooms, drawing rooms, and in the quarters of Cadets, for their instruction. He acts as instructor for two sections of the first class in engineering and aids the professor in such manner as the latter may direct. Each of the other two instructors is in charge of two sections of the first class in engineering, and, in addition, holds himself at the service of the professor for such other duties as may be prescribed.

The first class in engineering, being arranged originally in the order of their standing in natural and experimental philosophy, is organized into six sections, numbered in order from one to six, inclusive, the first section being the highest. The higher sections usually number one or two more Cadets than the lower, in order that more time may be devoted to individual instruction and explanation in the lower part of the class, where presumably they are more needed. This organization of the class is maintained throughout the year, but the members of any or of all the sections may be changed by mutual transfers between the sections.

Each of the three instructors is charged with the instruction of two sections. The assistant professor begins each term with the first and second sections, the instructor second in rank begins with the third and fourth sections, and the junior instructor begins with the fifth and sixth sections. At the end of two weeks the instructors change sections, the senior taking the lower sections, the second in rank taking the higher sections, and the junior taking the middle sections. Thereafter the instructors change sections every two weeks in the order just indicated, except during engineering, drawing, and general review, when they retain the sections with which they began the term.

It is believed that this rotation of instructors eliminates to a great extent the effect of their "personal equations," and makes the merit marks of each section comparable by a just and uniform standard to those of all other sections.

This method has the further advantage of giving to all sections equal shares of the benefits arising from having the ablest instructor, and it enables the instructors to compare and weigh recitations in all parts of the class and to adjust their scales of marks to a truer and more uniform standard.

Part 4.—Description of a Recitation.

The section rooms used by the department of civil and military engineering are similar in all respects to the rooms on the same floor used by the department of mathematics. The formation of the class parade, the report of the sections to the instructor, and the method of conducting oral recitations by blackboard demonstration and by questions are also similar to the general method followed by the department of mathematics. As these subjects have been very fully and carefully described in the report of that department, it is thought advisable to refer to that description and to give in detail in this report only the points in which the two departments differ.

The apparatus belonging to the department and used in the instruction of Cadets consists of testing machines, models of engineering implements and machinery, including pile drivers, derricks, dredges, engines, etc.; models of engineering structures, such as arches, bridges, buildings, roof trusses, dams, locks, caissons, piers, crib work, etc.; samples of building material, models of fortifications, battle fields, defensive arrangements, block houses, etc. The smaller models and pieces of apparatus are displayed on the tables in the section rooms when they are subjects of discussion in the lesson. The larger models are in the model room (No. 106), and are described and explained to the Cadets when they visit this room with their instructors. The department possesses a number of tables, drawing boards, steel rulers and triangles, color-saucers and glasses for the use of Cadets in engineering drawing, and the usual instruments used in reconnoissance.

In engineering drawing the entire class attends daily, except Sunday, from 8 a. m. to 11 a. m., with an intermission of about eight minutes at 9.30. Several days before the drawing begins each Cadet receives a drawing board, which he takes to his quarters, and upon which he stretches a sheet of drawing paper, bringing it back to be inspected by his instructor. On the first day of drawing the whole class enters the engineering drawing academy (rooms 201 and 202, Academy building), and each Cadet, directed by his instructor, seeks the table that contains his drawing board. The tables and boards have been previously arranged so that the two sections of each instructor shall be kept together in a selected portion of the rooms, and the instructor's desk and chair are so placed that he may readily oversee the work of his sections. Cadets remain standing while working at their drawings, and are required to keep at work continuously and to refrain from communicating with their neighbors and from examining adjacent drawings. Their work is inspected daily by their instructor, who points out errors and gives such directions and assistance as may be necessary. The work is marked twice a week, on Tuesdays and Fridays, each mark representing an estimate of the progress, accuracy, neatness, and industry displayed in drawing, the scale of marks used being the same as for ordinary recitations, i. e., the maximum mark for three days of perfect work is 3. At 9.20 a. m. the class is dismissed by sections for a recess of about eight minutes, forming again and returning to work at 9.30.

The head of the department, as a rule, makes two visits to the section rooms each day, visiting on one day the two sections that attend successively in one section room, say No. 206; on the next day the two that attend in room 207, and on the next the two that attend in room 208, and continuing in this order, so that each section has received a visit from the head of the department every three days, except when these visits are interrupted or prevented by attention to other duties.

The visit usually extended over the last half hour of the recitations of each section.

PART 5.—EXAMINATIONS, WRITTEN, ORAL, WEIGHT OF—DEFICIENCY OR PROFICIENCY OF CADETS—STANDARD REQUIRED.

The general regulations giving the method to be followed in the examination of all classes are found in the Regulations U. S. Military Academy, 1894, sections 71 to 83, inclusive.

The examination of the first class in civil engineering in January and in military engineering and art of war in June are conducted orally by a committee of the Academic Board in the room and at the time prescribed by the Superintendent.

Prior to the examination each instructor prepares a list of subjects upon which he proposes to examine the members of his sections and submits it to the head of the department, who makes such alterations and corrections as may seem necessary, and the revised list is kept securely sealed pending the examination.

The examination begins with the lowest man in the lowest section and proceeds in regular order upward through the class.

The drawings executed by the cadets during the term are displayed on a table in the examination room for inspection by the Academic Board, which inspection is intended to constitute a part of the examination.

The proficiency of a Cadet in civil or military engineering before examination is considered doubtful if his total mark is less than two-thirds of the maximum total mark, and he is so reported to the examining committee. The question of his proficiency is then to be determined by the examination, and if he is markedly deficient in marks before examination he may be required to undergo a written examination in addition to the usual oral examination. If a Cadet fail on his first examination subject, he receives a second subject in order to determine his proficiency.

Part 6.—Critical Review of the Present Course and Method of Instruction—Comparison with former Years and with other Institutions. 1896.

The gradual development of the present course and methods of instruction are given very fully in the preceding part of this report.

As an engineering school, its influence and methods as compared with schools making the instruction of engineering in its several branches a specialty are brought out in the report of Professor Riedler, of the Royal Polytechnicum at Berlin, in his report on American technological schools. (See Report of the U. S. Commissioner of Education, 1892–93, vol. 1, p. 657.)

The number of these colleges giving degrees in civil engineering is 45. The requirements for admission are all higher than at West Point, the course of pure mathematics consequently shorter, and the length of the course generally four years. The course of engineering is divided into recitations, lectures, laboratory work, drawing, and field work. The amount of time given to each division is quite different in the different schools.

As these schools differ very much in their methods, I have limited myself to the following extracts of the report, which refer specially to West Point and military schools in general:

Military schools.—Before 1840 real instruction in engineering was offered almost exclusively in the Military Academy at West Point. Up to 1840—even up to 1850—nearly all the civil engineers had received their preparation in this military school. From its establishment, in 1802, up to 1862 it prepared about 2,000 students. Of these, 200 became civil engineers and about 230 entered the military Engineer Corps.

Among the former number are the most renowned civil engineers of the country. * * *

Between the years 1880 and 1888 only 2 per cent of the students were admitted to the Engineer Corps of the United States. Service in this corps requires an additional study of two years and a half in the United States School for Engineers at Willets Point, Long Island, organized in 1885. The technical instruction in this school comprises twenty-two weeks in civil engineering, nineteen weeks in chemistry and photography, and forty weeks in science of explosives and torpedoes.

Since the beginning of the sixties the Military Academy at West Point has lost some of its importance with reference to education of practical civil engineers. The number and importance of engineering schools, pure and proper, have become very great, and the enormous development of this branch has necessitated a division of labor. * * *

The military schools do not serve the profession of civil and mechanical engineering any longer. The times in which mainly knowledge of mathematics, geometry, and geodesy were considered sufficient for the profession of engineers have passed, and to-day there is no engineering school which does not seek its main work in extensive professional instruction.

Nevertheless the military schools, with the peculiar education and rather limited theoretical and practical instruction for civil and mechanical engineers they offer, are of great importance. We find the proof of this in the great number of distinguished civil engineers who have graduated from such schools. This holds good not only for America, but for other countries. With us the course of education of a Werner-Siemens may induce us to deep reflection.

In face of the present enormous development in exact knowledge of scientific and technical details the actual result of the study is dependent now as formerly upon simple natural conception, clearness, and thoroughness, but not upon the extent of knowledge. Military schools in this respect offer many advantages. The most distinguished technological school in France also is a military institution. If a negative advantage of these schools is the prevention of knowing and learning too many things, then the strict formation of character, the reliability and independence gained, must be a positive advantage that can not be gauged too high. Alas, many a modern school esteems that advantage too little.

F.

HISTORICAL SKETCH OF DEPARTMENT OF DRAWING.

[The historical sketch of the department of drawing given below is taken without change, except as to order of arrangement and certain omissions, from the History of the Department prepared by Professor Larned for the Superintendent's report of 1896, to which reference can be made for other minor details.

Since 1896, with a view to the more perfect fitting of the graduate for his duties upon joining his regiment or corps, more time has been given to field reconnoissance and military sketching. There is a tendency to still further development in that direction provided it can be accomplished without detriment to other important instruction.

The department of drawing has done and is continually doing an enormous amount of work, most valuable for the Academy and the Government. This work consists of surveys and maps of the post, drawing of plans and elevations of buildings whenever improvements at the Academy have been made or are contemplated. The department has also

been several times called upon to prepare and arrange exhibits of the Academy for various expositions held throughout the country, which exhibits have involved great labor and done much good to the Academy. The extra work of this department, here alluded to, besides being not strictly legitimate as a function of a department of instruction, has been a most heavy burden for the past fifteen years.]

The subject of drawing is the second one to be mentioned during that period when the germ of the Military Academy was in process of creation by legislative acts of Congress. By the act of February 28, 1803, fixing the military peace establishment of the United States, section 2, the President of the United States is "authorized to appoint one teacher of the French language and one teacher of drawing, to be attached to the Corps of Engineers, whose compensation shall not exceed the pay and emoluments of a captain in the Army."

The course in drawing commences with the appointment of Francois Désiré Masson as teacher in that branch in connection with the French language, under the provisions of this act. In September, 1808, he was succeeded by Mr. Christian E. Zoeller, a Swiss of limited education, who seems to have been unequal to the requirements of his position. At the end of April, 1810, he gave up the office, but was reappointed July 1, 1812, there being no incumbent during the disorganization of the Academy in the interim.

The act of April 29, 1812, making further provision for the Corps of Engineers, section 2, gives explicit definition of the Military Academy and its personnel as consisting "of the Corps of Engineers and the following professors, in addition to the teachers of the French language and drawing already provided," etc.

Mr. Zoeller was succeeded January 5, 1819, by Thomas Gimbrede, a Frenchman of eccentric character, who was reputed to be a painter of miniatures previous to his appointment. Work now extant executed by him shows him to have had but little ability even in the stiff and dry academic methods of that time.

The first mention of drawing as an organic "department" of instruction is in the appropriation act of March 25, 1826, making appropriation "for articles required for the mathematical, drawing, chemical, and mineralogical departments."

From that date on, this, with other departments of instruction, is regularly appropriated for in the annual acts for the Military Academy. The professorship was created by the act of August 8, 1846, section 3, enacting: "That the teacher of drawing and the first teacher of French at the Military Academy shall hereafter be, respectively, professor of drawing and professor of the French language."

In 1833 the distinguished artist, Charles Albert Leslie, was induced to accept the position after the death of Mr. Gimbrede, December 25, 1832. Mr. Leslie, who was appointed March 2, 1833, was of American parentage, although born in England. From the age of 5 to 17 he lived in Philadelphia, but after that period his life belongs to the history of English art. The dry and rigid environment of a military school in a country destitute of art could not but be distasteful to a man of Leslie's temperament and education, and his stay was therefore exceedingly brief. In June of the same year he was succeeded by Robert W. Weir, an American artist who had already achieved distinction, and who was destined to take honorable place among the American painters of the first half of the nineteenth century. Mr. Weir was born in New Rochelle, N. Y., in 1803; studied in Italy from 1824 to 1827, and at the time of his appointment had a studio in New York City. As teacher of drawing Mr. Weir became a member of the Academic Board of the Military Academy August 8, 1834; his long and honorable career in this institution closed with his retirement July 25, 1876, after forty-two years of continuous service. He was succeeded at this time by Charles William Larned, the present incumbent, then first lieutenant, Seventh Cavalry, acting assistant professor in the department of drawing, a graduate of the Military Academy of the class of 1870.

During the early period of the Academy—from 1802 to 1810—the course in drawing, like that of other departments, appears to have been of a very elementary character, confined to the use of instruments, such as they were, with a little topography and fortification drawing. The regulations of May 22, 1816, define the course as consisting of the drawing of figures, fortifications, and topographical plans. At

the beginning of Thayer's administration instruction in the use of pen and ink, and color, and the use of surveying instruments in the field was nominally given by Mr. Zoeller, but under the existing conditions must have been both crude and ineffectual. Under the stimulating influence of the great Superintendent, however, work in this department soon took on a new character and embraced a much wider field, covering both figure and landscape work in pencil and ink, crayon, and color, and all forms of topographical drawing. It appears from the staff records that appointments to the corps of topographical engineers were at this time occasionally made according to proficiency in drawing. Cadet Bache was appointed a captain in that corps for this reason, and so held in spite of protest, completing a long, useful, and distinguished career in that branch of the service. Until 1817 drawing was confined to the first class. In that year the collateral course of the second class was established.

In 1820 the course was defined to be: Elements of heads and figures in crayons, elements of landscape in crayons, practice in taking actual sketches in landscape from nature, elements of topography and the raising of maps.

In 1821 the course was further defined to embrace a series of elementary studies in landscape, the art of shading geometrical figures with india ink, sketches from nature, and elements of topography with pen, pencil, india ink, and colors. Instruction was given daily to the second class from 2 to 4 p. m., and alternate days to the third class during the same hours.

In 1822 the course of drawing in the third class (second year) was established and dropped out of the first class (fourth year).

The method of instruction appears to have been wholly that of copying from other drawings, a method pursued for many years to come, and which, while devoid of practical value or permanent results except to a very limited degree, is fruitful in deception and false pretenses. An investigation made in 1826 by a committee of the Academic Board into the practices of Cadets in this work revealed an extensive demoralization, and the prevalence of fraudulent methods such as tracing, substitution, and the like.

In 1825 it was further modified as follows: (1) Elements of the human figure; (2) a series of elementary studies in landscape with the pencil; (3) the art of shading geometrical figures with india ink; (4) the shading and finishing of landscapes in india ink; and (5) sketches from nature, and elements of topography with the pen and pencil, and with india ink, and colors.

In the distribution of time the second class attended drawing daily from 2 to 4 p. m., taking landscape and topography; the third class, Mondays, Wednesdays, and Fridays, from 2 to 4 p. m., taking the human figure.

In 1839 "the art of shading geometrical figures with india ink," and "the shading and finishing of landscapes in india ink," together with "sketching from nature," are omitted from the prescribed course. The relative count of the third-class course in drawing was changed to one-half, although it appears that daily attendance was required. The course was somewhat elaborated under Mr. Weir's direction, and in this year is described in the Staff Records as consisting of the following subjects, with a text-book, probably as a book of reference, on topography, prepared by Lieutenant Eastman, and adopted in 1837:

1. Geographical signs.

2. Topographical delineation of rocks and hills; wild and uncultured grounds; rivers; lakes, marshes, etc.

3. Formation of letters.

4. A course of topography with the brush, laying flat, broken and blended tints (symbolical of various grounds, etc.); shading mountains, rocks, trees, and other objects appertaining to wild or uncultivated countries. This completes the course in topography.

The course in free-hand work began with outline drawings of the human figure (anatomical) in three positions, and outline drawings from Flaxman and Retzch, which conclude the third-class course. In the second class, landscape is taken up under the following heads: (1) Measurement; (2) form, simple and compound; (3) aerial perspective; (4) light, copying same size and different scales; (6) drawing on tinted paper; (7) use of brush (sepia); (8) coloring; (9) finished

drawings from standard works. The entire work seems to have been copied from models in the flat.

In 1867 the inspector of the Military Academy recommended that penmanship be made a part of the course of drawing and be assigned a separate value of 100 in credits. The Academic Board in accordance with this recommended that one hour each day be given to that subject in the beginning of the third-class course until each Cadet shall have acquired, in the opinion of the professor of drawing, a sufficient proficiency. It also recommended that no additional count be given in the course of drawing to that branch.

In 1872, upon the recommendation of the Academic Board, instruction in penmanship was discontinued for the reason that little benefit accrued to Cadets from its study, and that the time could be more profitably employed on the elements of drawing.

In 1879 the construction of various problems in descriptive geometry, shades, shadows, and perspective, then undertaken by the third class in the department of mathematics, was made a part of the course in drawing.

In 1880 the professor of drawing submitted to the Academic Board the following propositions regarding the course of instruction in that department:

1. That there should be a written examination in the course of drawing covering the subjects therein taught by lecture.

2. That a course of instruction by lecture, coupled with drawing from models, be given in the subject of mechanical engineering, embracing the elementary machines and movements.

3. That a portion of the time of the encampment be employed in practical surveying.

4. A detailed programme of the course in drawing.

A committee of the Academic Board was appointed to report upon these propositions, and recommended that there should be no written examinations in drawing; that such lectures as the professor of drawing shall deem necessary shall be prepared; that lectures and instruction upon the subject of mechanical engineering be wholly omitted; that the proposition regarding surveying during the encampment be so

modified as to apply to the hours now devoted to drawing; and that the course as submitted with those modifications be adopted.

The Academic Board adopted the recommendation of the committee rejecting written examinations; recommended that no study upon the matter given in lectures of the professor of drawing shall be required in any time other than that allotted to drawing; rejected the instruction in mechanical engineering and applied mechanics, and recommended the appointment of a new committee for the consideration of the matter of surveying.

The attendance in drawing, which up to 1839 appears to have been daily for both classes, was changed between that date and 1842, so that the third class attended only on alternate days, excluding Saturdays, giving five attendances in two weeks. The second class continued to attend daily. This disposition appears to have remained undisturbed until 1857, at which time the hours of attendance of the third class were changed so as to permit instruction in riding to be given after November 1. Up to that day the whole class attended daily; thereafter it was divided into two sections, alternating in attendance until March 15, after which daily attendance was resumed. It does not appear from the Staff Records at what time the daily attendance of the second class was changed so as to substitute an alternating attendance of sections of one-half the class. This is, however, the arrangement at the present writing, and has been so for over thirty years.

PRESENT COURSE, JUNE, 1896.

Based upon the detailed programme submitted by the professor of drawing in 1881 as modified and adopted by the Academic Board, the present course of instruction is arranged as given below, being the programme approved by the Secretary of War and incorporated in the academic regulations of October 1, 1894.

COURSE OF TECHNICAL AND FREE-HAND DRAWING.

First year.—Plane and descriptive geometry—topography—color reconnaissance.

[September to January.]

Instruction in the course of the first year is as follows:

1. Problems of construction in the applications of plane geometry, ranging from the laying out of angles and polygons to the construction of the various plane curves, including the ovals and conic sections. Drawn in pencil. (4 sheets.)

2. The conventional signs of topography. Drawn in pencil and in ink. (2 sheets.)

3. Determination of lines of screen and construction of sections and gradients on contoured map. Explanation of contours and study of terrain. (1 sheet.)

4. Exercise in hachure work. Explanation of scales of shade. Drawn in ink. (1 sheet.)

5. Exercise in contouring from dictation. (1 sheet.)

6. Construction of scales of distance. Diagonal scales. Verniers. Explanations of their uses. Drawn in ink. (1 sheet.)

7. Plotting of triangulation for completed map from field record. General explanation of triangulation methods and measuring of bases. (1 sheet.)

8. Plotting of details of completed map from traverse notes. Explanation of methods of field notes and contouring. Inking and finish of completed topographical map. (1 sheet.)

[January to June.]

1. Theory of color. Color standards and constants. Color tests. Laying of washes. Complementary colors. Hues, tints, and shades laid in water colors. (2 sheets.)

2. Construction of problems in Descriptive Geometry. Shades, shadows, and perspective. (9 sheets.)

3. Topography in colors. Conventional signs. Completed map in colors. (1 sheet.)

4. Field reconnaissance and sketching. Methods and materials. Instruments and their use. Descriptions and explanations. Practice sketch from dictation. (1 sheet.)

5. Work in the field. Reconnaissance map of position with hand level, prismatic compass, and clinometer. Drawn on regulation form prescribed by General Orders, Headquarters United States Army. (1 sheet.)

Second year. Free-hand drawing—memory drawing—mechanical, architectural, and ordnance construction drawing.

Free-hand drawing.

[September to January.]

1. Lectures on form, light, and shade. Proportion, outline, technical and pictorial art, practical and aerial perspective. Drawing from wood blocks in outline in pencil. (7 sheets.)

2. Shaded drawing from blocks and plaster. (2 sheets.)

3. Drawing from memory. Originals—first, flat; second, blocks; third, buildings. (8 sheets.)

4. Mechanical free-hand drawing. Dictated. Parallels, angles, proportional parts, polygons and stars, frets, gear teeth. Isometric working drawings to scale. Isometric building to scale. Cavalier projections. Cavalier machine casting to scale. No ruler or implements allowed. (6 sheets.)

5. Free-hand drawing from flat. Figure outline. (2 sheets.)

6. Free-hand drawing from flat. Figure and landscape. Pen and ink and pencil. (2 sheets.)

Lectures on the above from time to time.

Technical drawing (architectural, mechanical, and ordnance construction).

[January to June.]

1. Project. Plan, section, and elevation of barrack for a company of infantry—drawn to scale, printed specifications and data furnished. Finished in ink. Measurements figured. (1 sheet.)

2. Working drawings to scale of steam engine and principal parts. (1 sheet.)

3. Working drawings to scale of parts of buildings. (1 sheet.)

4. Elevation and working drawings to scale of ordnance constructions. (1 sheet.

5. Plan, section, and elevation drawings of civil and military engineering constructions. (1 sheet.)

All of the above in color or ink alone, according to character. Nos. 2, 3, 4, and 5 occupy the time remaining after completion of No. 1. No. 1 is taken by entire class. The others are assigned according to Corps to which Cadet will probably be assigned on graduation. Engineers, No. 5; Ordnance and Artillery, No. 4; line corps, Nos. 2 and 3.

6. Fifteen to twenty short lectures on the graphics of building construction and forms; methods and drawings in the planning and construction of buildings; the steam engine and its essential parts; machine drawings. These are accompanied by diagrams and models and the use of the stereopticon.

Sheets of data, working drawings, blue prints, and photographs used

for data in the foregoing are from the following sources: Corps of Engineers and Report of Chief of Engineers, U. S. Army; Ordnance Bureau and Reports of Chief of Ordnance, U. S. Army; Pneumatic Gun Carriage and Power Company, United States; Baldwin Locomotive Works, United States; Krupp's and Gruson's Werke, Prussia; Canet System, Forges et Chantiers de la Méditerranée, France; Maxim-Nordenfelt Gun and Arms Company, England; Construction Details, Austrian Military and Geographical Institute, Vienna, Austria; Notes on Building Construction, South Kensington, London, England; Details of Building Construction, Professor Chandler, Boston Institute of Technology; Senior Course in Mechanical Drawing, Professor Thorne, Franklin Institute, Philadelphia. Ordnance material and models in relief also used as models.

The third class attends daily, Saturdays and Sundays excepted, from 2 p. m. to 4 p. m. until November 1, after which day the class is divided into two sections—the first section, until January 1, consisting of the odd numbers in general class standing, the second section of the even, these sections alternating in attendance. After January 1 the division of the class is similarly obtained from the standing in drawing at that examination, and alternation continues until March 15, after which daily attendance, Saturdays and Sundays excepted, is resumed until the end of the term.

The second class alternates in sections throughout the term, being divided into two sections of odd and even numbers, obtained from the standing in drawing at the end of the third-class year. Its hours of attendance are from 2 p. m. to 4 p. m. For the better preservation of order the third class when attending daily is divided into four sections, which at the close of attendance are dismissed and retire separately under charge of separate section marchers, who are responsible for infractions of discipline.

CLASS REPORTS AND MERIT MARKS.

Class reports are submitted weekly, each Cadet being given a merit mark on his week's work. These marks are scaled on a maximum of 3, and are determined from a consideration of two factors—i. e., progress and quality. A time schedule compiled from the records of the department and the result of several years' experience is maintained for each separate

piece of work. If a Cadet begins a piece of work on Monday and has on Saturday completed the full amount of work according to the schedule, he is marked accordingly for progress. Going a second time over the class, the element of progress is entirely ignored and a mark for quality alone is given.

In work of certain character, where quality is considered most important—*e.g.*, conventional signs in color—the quality mark is given a multiplier of 2, and the resulting mark for the week would be determined as in the following example: Quality mark, $2.5 \times 2 = 5$; progress mark, 2.4; total, 7.4; reduced to a scale of $3 = 2.47 =$ mark for week.

In certain other portions of the work—as, for example, descriptive geometry—quality and progress are rated equal and given the same weight in the determination of the mark.

Exact record of progress is kept by recording against each Cadet at the end of every week the number of hours to his credit according to schedule in the particular piece of work upon which he is engaged. By this method a glance at the record tells exactly what each Cadet has done each week of the term, and as the work is filed away as fast as completed in the drawer allotted to him, the most complete information is always immediately available as to the status of every member of the class at any period of his instruction. The marks, with rating both for quality and progress, are posted in the class room weekly, so that Cadets know in what element of their work they are deficient.

As each problem, construction, or drawing to be inked is completed in penciling it is examined by an instructor, and if approved is so marked by him over his initials in pencil. The Cadet is thereby authorized to proceed to the inking, and upon the completion of this stage of the work it is again brought to the instructor for final approval, which, if accorded, is stamped in ink, with the instructor's name; otherwise the word "Disapproved" is stamped in a similar manner. Upon each drawing is also stamped the name of the Cadet and date of completion, a brief of the course of drawing to which it belongs, and, if a problem, an enunciation of its requirements.

At the examinations closing the year's course drawings of

special excellence are retained by the head of the department for preservation in the Academy gallery—a custom which has been adhered to for over seventy years—and, as a result, a collection of drawings dating back to the early twenties, and bearing the names of graduates whose reputations are national, is exhibited on the walls of the Academy.

EXAMINATIONS AND STANDARD OF PROFICIENCY.

Examinations are held and class standing determined by inspection of marks and drawings. The latter are displayed upon racks and tables so as to be easily examined and compared. As the course is mainly technical and constructive, the marking is according to schedule and very close, so that very little deviation from the standing resulting from marks is found necessary after a comparison of the work. In the course of free-hand work, from September until January of the second-class year, more change results from the final inspection of work than at other times.

The standard of proficiency exacted is such as long experience has demonstrated to be fully within the grasp of the diligent and fairly intelligent student, without reference to natural pictorial gifts. As three-fourths of the course is geometrical in its elements and technical or constructive in its character, mainly executed with drawing instruments, and as the free-hand work is confined to practicing and developing the perception of proportion and relation in the simpler elementary forms, beginning with blocks and elementary analysis of landscape, it is found that students with no natural pictorial powers whatever find no difficulty in passing and even in standing well in this study. A Cadet, therefore, who constructs with correctness and accuracy the problems in plane and descriptive geometry, plots and completes from traverse notes and triangulation sheet with correctness and fair neatness of finish the required topographical map, and shows ability to draw a fairly accurate reconnoissance field sketch, will be declared proficient in that portion of the course, although the pictorial finish may be 50 per cent inferior to that of the head man. In free-hand work the student must show a very rare incapacity for perception of

form to be declared deficient therein. In the course of architectural, building construction, engineering, and ordnance drawing the same conditions obtain as in the geometrical and topographical work.

The course of drawing at the Military Academy at the present time is based mainly upon the fact that the practical language of modern construction of every sort is technical drawing.

The appointees to the Military Academy were formerly for the greater part wholly deficient in any, even the most rudimentary, instruction in drawing. An average of 10 per cent had had no elementary training—in some classes not 5 per cent. It was therefore necessary that instruction here should begin at the illiteracy in this branch—a condition that was not paralleled in any other subject. Of late years this percentage has greatly increased and at present often reaches 50 per cent.

The result to be achieved is twofold: First, to train the faculties of vision and those of execution through the hand when at a period of comparative maturity they are entirely dormant; second, to teach the general principles of technical drawing so that the graduate shall have an intelligent acquaintance with the constructive language of engineering, architecture and building construction, topography and cartography, and machinery, and shall be able to make a fairly good free-hand drawing of natural and artificial form. In his capacity as commanding general, commanding officer of a post, engineer, ordnance, artillery officer, quartermaster, surveyor, subaltern on reconnoissance or supervising construction, he is liable to require any or all of this knowledge, and at least to translate it to his subordinates. The instruction is therefore twofold—in the practical graphical work and by lectures copiously illustrated, coupled with constant oral criticism.

The cardinal principle upon which instruction is based is that all work shall be *original*—that is to say, that every project or problem shall be the student's own work, constructed from the data or model according to the principles governing it. The only copies from drawings permitted are in the case of a

few outline studies of the human form and landscape at the close of the course of free-hand instruction. The next condition exacted is accuracy, after which comes pictorial excellence and neatness. The ultimate purpose is to give a sound general training in the elements of technical and free-hand drawing, so as to familiarize the student with the methods of graphical work in the various fields of topographical, geometrical, structural, and mechanical drawing to a sufficient extent to enable them to understand the graphics of these subjects when required to interpret them, and to possess a reasonable facility of design therein, rather than to attempt to carry any one of them to a degree of development appropriate only to special courses in schools of application. As a matter of fact, the more apt students do attain a facility and skill which enables their work to bear comparison with that of the best of the special schools either in this country or abroad. In the free-hand course the ultimate aim, after the cultivation of the perceptive faculties, is to give sufficient pictorial skill to enable the graduate to make outline sketches of general landscape and hill forms to accompany topographical and reconnoissance reports. Further than this with the average man it is not possible to go. Artistic power can not be taught; it must be innate in the same way as are poetic, rhetorical, or dramatic gifts. But the whole range of technical graphics, which is the language of the constructive and industrial world, and a certain ability to render ordinary form by free hand can be taught to all in precisely the same degree as any of the various branches of study; the eye-faculties of judgment, memory, and apprehension can be trained to a very high point, and the taste and appreciation can be developed in those in whom the artistic and creative power is lacking.

METHODS OF INSTRUCTION. 1896.

FIRST YEAR'S COURSE.

Geometrical and topographical drawing.

Plane geometry.—About 40 problems covering various applications, from laying out of angles to plane curves and conic sections. (See programme.) These are done in pencil

and constitute the first work of the student. The data are issued on printed sheets giving a brief general analysis of method. This refreshes the memory of plane geometry and gives the first practice in the use of instruments. Accuracy and neatness are here inculcated as primary requirements.

Conventional signs of topography.—Topography is assigned to this first year's course because surveying and trigonometry are taught in this year. The general signs are first executed in pencil and afterwards repeated in ink. The repetition impresses them upon the memory, besides making the transition to ink work gradual. In these signs there is a partial free-hand element which needs the practice in pencil before attempting ink. Clearness and neatness of finish emphasized. Examples in large maps of coast survey and foreign countries displayed for inspection upon tables.

Determination of lines of screens and sections, etc.—Lithographed sheets giving the contours of a particular region are issued. The lines of section required are indicated and the section is made by the student. Position of batteries indicated and lines of screen from fire determined on different slope by student. Gradient of required road given; position of road platted by student. A comprehensive series of questions covering the reading of the hypsometry, conventions and scales of the various maps of the United States and those of the leading nations of the world are given each cadet for solution on the maps.

Exercises in hachure work.—This work is now confined to a short exercise in the use of hachures, with an explanation of scales of shade of different methods of hachuring.

Exercise in contouring from dictation.—Bearings and gradients together with topographical features are given, from which terrain is plotted by the student.

Construction of scales of distance, etc.—These scales are thoroughly explained in theory and then accurately constructed to given representative fractions and units by the student.

Platting of triangulation for completed map, etc.—The class at this point begins the final work of the first term, which is a practical application of the foregoing preliminary instruction.

This consists in the actual work of platting and drawing a finished map from the triangulation sheet and field traverse notes, and demonstrates the extent to which the student has understood the principles of topography and acquired the necessary facility for the execution of a correct map. The data for establishing the triangulation points are given as if taken by observation, and a book containing all of the traverse notes as taken in the field book for the area to be mapped. The platting is carefully tested as it progresses and all errors noted. After final approval of the platting the finishing work in ink is proceeded with.

Theory of color, etc.; hues, tints, etc.—The subject of modern chromatics is taken up at the commencement of the second term. After an explanation of the modern theory of color of Young and Helmholtz, is taught the laying of flat tints of the primary and complementary hues and shading of cylinders and curved surfaces.

Construction of problems in descriptive geometry.—As this subject is the foundation of technical drawing, its practical application in graphical problems is given the most careful attention. In order that the difficulties of a practical grasp of the subject shall be overcome, the first work deals with the simplest problems. The class receives in the course of mathematics most thorough and careful theoretical instruction and comes to this work as fully equipped in the theory of the subject as can be desired. The problems given are selected with a view to practical bearing upon graphical work in architectural and mechanical construction. Each problem as given is carefully explained, and questions as to obscure points invited and answered. The principal problems as they are reached are then set up on the demonstration frame and the explanation repeated from the actual objects and projections in space. The students are then required to make the construction. The demonstration frame may be at any time consulted to resolve difficulties and forgotten points. Cadets are not allowed to help each other, and the signature of the Cadet is held to be a guaranty of the integrity of the work. The first problems are constructed in pencil alone, and consist

of the projections and revolutions in various planes of simple plane figures, cubes, and prisms, with sections and developments. These are quickly done, and give confidence and flexibility in the use of projective methods. After these the problems increase in complexity and are finished with greater care and accuracy in ink. They include determination of intersections of different solids with developments, shades and shadows of crosses, cylinders, rings, spheres, or ellipsoids; the column with abacus and base with taurus; chimney and dormer window on roof, vase, etc.; the perspective of rings, shafts, spheres, monuments, groined arches, buildings, or composed subjects. These are executed with the utmost accuracy and a high degree of finish which will compare with anything done by students elsewhere, at home or abroad.

Topography in colors.—Water-color washes as applied to topographical maps. First, a sheet of conventional signs followed by a completed map.

Field reconnoissance and sketching.—Careful lectures and explanation, with exhibition of implements and illustration by the lantern, precedes this most important branch of military graphics. Methods of work in this country and abroad are explained and illustrated, and preliminary practice given by dictating courses and data *viva voce*, requiring a topographical sketch to be platted from the description. The class is then taken into the field, formerly with prismatic compass and regulation protractor sheet, but now with the reconnoissance sketching board of Major Vernor, of the English service, as modified and greatly improved by Lieut. Charles B. Hagadorn, first lieutenant, Twenty-third Infantry, instructor of drawing. This is a simple application of plane table methods to field topography, and vastly superior both in accuracy and rapidity of result to the older methods. A sketch is made of a portion of the military reservation, and contours are determined and platted both with levels and clinometer. Practice is also given in sketching without compass or implement of any sort. This work closes the first year's instruction.

SECOND YEAR'S COURSE.

Free-hand drawing.

Outline drawings from blocks and plasters.—This work is addressed to the dormant faculties of vision, and is of the simplest and most elementary character. The objects are at first white cubes, which are carefully drawn "by eye," the knowledge of perspective laws acquired in the preceding year being here applied in the judgment of form. According as the student progresses other blocks are substituted, and then groups of two, three, four, and many blocks in irregular masses. Finally, rough buildings are constructed with blocks and sketched from different points of view, and, if sufficient skill is developed, plaster forms. Succeeding this, a series of memory drawings is required, beginning with simple rectilinear shapes, increasing in complexity, which the student is allowed to view for a very short period and must then reproduce. More complex forms succeed these, and finally the students are sent out to examine buildings for a short time, which they must then draw from memory.

Mechanical free-hand drawing.—This work is done without any implement or artificial aid whatever other than the lead pencil. This must not be used as a ruler. Beginning with simple subdivision of lines into equal parts, scales are drawn by eye showing subdivisions as high as sixtieths. The various constructions of frets, polyhedrons, stars, plotting and division of angles, etc., are gone through with, and finally scale drawings of objects giving sections and dimensions are done, concluding with isometric scale dimensioned drawings and cavalier projections of machine castings of the same kind. The class is then practiced in sketching hill forms from lantern projections on a large screen, beginning with very elementary forms and gradually leading up to views of the region of the Colorado Canyon. This work is followed by study from lithographed studies of landscape in the flat and landscape sketching in the field. The course concludes with a few figure outlines by Bargue and Gérome, and studies of figure and landscape from the flat in pen and

ink, as an example of good method and to afford some slight facility in execution within the very limited time and range of this course. This concludes the first term.

Project—Barrack for a company of infantry.—This begins the final course of constructive drawing. This project is a practical one and is given out to the individual members of the class by a printed sheet of specifications and two sheets giving detail dimensions. The plan, section, and one elevation of the building are then constructed to the required scale. This important piece of work gives a very thorough practice in the preparation of general drawings for a building, and is undertaken in connection with a course of explanatory lectures fully illustrated by the stereopticon. In this work the student learns to relate drawings in plan, section, and elevation, and to understand the working out of detail and shop drawings. It is a double study for the student, teaching both construction and interpretation of working drawings. The drawings are carefully figured and colored in flat wash if the progress of the individual work justifies it.

Working drawings—Steam, building construction, ordnance, civil and military engineering.—After the completion of the project above described, the class is divided into groups according to the general class standing of the men. The final work is then assigned according to the corps of the Army to which the Cadets will probably be assigned. The first five men are given subjects selected from military or civil engineering data—batteries planned or in process of construction in the United States and abroad; portions of enceintes; magazines; bridge and canal work, the data for which are being constantly sought in the latest works. The next twenty men, whose probable service is to be in the Ordnance and Artillery Corps, are given subjects of ordnance and artillery construction. Working shop-drawings of the principal guns and carriages of the United States Ordnance Bureau are on file in the department, together with a large amount of data from foreign countries of the latest models. The remaining members of the class, whose duties will be in the line as quartermasters, commanders of working parties, and as commanding officers of posts and in control of Govern-

WINTER VIEW FROM FORT PUTNAM.

ment property, are given working drawings of details of building construction, and a figured drawing of a simple direct-acting high-pressure vertical steam engine to complete to given scale. A large perfect model of a frame house to a scale of one-sixth is used for this work. Students are required to make isometric sections and projections through different parts of the barrack project, showing entire construction of windows, doors, and interior floor and roof construction—figured. A facsimile model of steam engine to one-half scale is used for the figured drawing of steam engine. Detail drawings of all the parts are also available, and the student is required to set up the engine to scale from these and the model. This work completes the course of drawing.

LECTURES.

All theoretic and explanatory instruction is given by lectures abundantly illustrated by stereopticon, blackboard, and models. Running commentary and *viva voce* criticism and instruction go on at all times. At any time when special explanation is needed the classes are called into the lecture room or to the models.

The course of lectures beginning with the first year's work covers: Drawing instruments—their character, quality, use, and care; methods and connections in geometrical drawing; topographical signs and conventions; methods of large surveys; triangulation and field work; contouring and hill sketching; traversing; plotting; cartography—historical sketch, styles, and methods; reading of maps; study and character of terraine; scales; the Young-Helmholtz theory of color—the prismatic and normal spectrum, color constants; complementary color; nomenclature; subjective color; pigments; harmony, contrast—illustrated by the stereopticon, Maxwell's disks, and color samples; methods of field reconnoissance. Instruments—levels, odometers, pedometers, compasses, clinometers, etc.—are shown and explained.

Lectures on form, light and shade, proportion, outline, technical and pictorial art, practical and aerial perspective, and landscape drawing are given during free-hand work, and are all illustrated with stereopticon.

During the last term of constructive and mechanical drawing a carefully prepared series of lectures accompany the work, explanatory of the details of building construction from foundations to interior finish; a historical sketch of architecture and explanation of styles; a descriptive analysis of the steam engine and its details, showing character and functions of its working parts, and of the various shop drawings. In addition, lectures giving the character and number of architectural drawings, fees and procedure in architects' offices, specifications, reproductive processes, quality and preparation of paper, tracings, enlargements.

In former years the entire course in drawing consisted in copying pictures in pen, ink, and color from engravings and lithographs. The course was devoid of lectures or theoretical instruction. No original work was undertaken. The work was largely worked over and finished by the instructor to give pictorial effect.

The work of the present course can not well be compared with that of other institutions, for the reason that it is general and comprehensive, whereas in the technical and scientific schools of the country the work is special, and in the special lines is carried further, and in the art schools the object aimed at is fine art, while the students possess special talent and have had considerable training before entering. At the Military Academy the eye and hand must be trained from a condition of entire helplessness, while at the same time a knowledge of the graphics of a wide range of arts is acquired. Notwithstanding the great disparity in the preparation of the students and the character of the aim, as well as limitation of time, I am of the opinion that the result will compare without discredit with similar work, either at home or abroad. The best drawings do not fall below the grade of expert work. This high standard of achievement is due to the methods of work of the Military Academy, the thorough preparation given by my associates, and the conscientious and enthusiastic fidelity of my assistants, without which very little could be achieved. I may also add that the interest of the Cadets themselves in their work is an important factor.

HISTORICAL SKETCH OF THE DEPARTMENT OF MODERN LANGUAGES.

[The following admirable sketch of the department of languages is that of Professor Wood (with a few omissions), prepared in 1896 for the Superintendent's report.

Since that date the following changes in the text-books of the department have been made: Traub's Spanish Verb and Spanish Pronunciation Book, and Ramsey's Elementary Spanish Reader have been introduced, and Mantilla's Reader discontinued in October, 1900.

In the general revision of the Academic course, which is to take effect September 1, 1902, the number of recitations in French was reduced to 200, terminating that course at the midwinter examination of the third-class year. The number of recitations in Spanish by the same revision was increased to 160—this subject to be taken up immediately after the conclusion of the French and continued to the following June. The revision referred to also increases the recitation period for English from 84 to 120. These changes will make necessary material modification in the time and work-schedule of the department of modern languages, and its labors, already great, have been thereby much increased. The assignment of the instruction in English to the department of modern languages differs from the method pursued in the majority of institutions of learning and adds materially to its work.]

The department of modern languages was established by the act of Congress of June 23, 1879, making appropriations for the support of the Army for the fiscal year ending June 30, 1880, which provided that when a vacancy occurs in the office of professor of the French language or in the office of professor of the Spanish language in the Military Academy both these offices shall cease, and the remaining one of the two professors shall be professor of modern languages, and thereafter there shall be in the Military Academy one, and only one, professor of modern languages.

By the retirement of Prof. Patrice de Janon, professor of the Spanish language, on June 30, 1882, and in accordance with the provisions of the foregoing act of Congress, Prof. George L. Andrews, professor of the French language, became professor of modern languages. The department of modern languages therefore dates from June 30, 1882.

As the present department was established by the absorption of the department of the Spanish language by the department of the French language, its history will require a history of the two latter departments.

(1) Department of the French Language.

This department was established by virtue of the act of Congress approved February 28, 1803, which provided that the President of the United States be, and he is hereby, authorized to appoint one teacher of the French language and one teacher of drawing, to be attached to the Corps of Engineers, whose compensation shall not exceed the pay and emoluments of a captain in the Army. Section 27 of the act of Congress, approved March 16, 1802, had provided that the said Corps of Engineers, when so organized, shall be stationed at West Point, in the State of New York, and shall constitute a Military Academy.

The act of Congress approved April 29, 1812, which definitely established the Military Academy, provided that the Military Academy shall consist of the Corps of Engineers and certain professors, in addition to the teachers of the French language and drawing already provided.

Under the provisions of the act of Congress of February 28, 1803, François Désiré Masson, a native of France, was appointed teacher of the French language July 12, 1803, and was succeeded by his brother, Florimond Masson, April 15, 1810. On the resignation of the latter, January 3, 1815, Claudius Berard, a native of France, was appointed teacher, and as teacher and professor was the head of the department for thirty-three years. The above constituted the teaching force of the department from February 28, 1803, until March 1, 1818, on which date Joseph Du Commun was appointed second teacher of the French language. The office of second teacher was not created by act of Congress, as had been the case with that of teacher, but the appointment was made March 1, 1818, by virtue of an order of the Secretary of War in February, 1818. Pay, however, was appropriated for the second teacher of the French language in the successive appropriation bills for the support of the Military Academy, and it might therefore be said that the existence of the office was sanctioned by Congress. From March, 1818, the two teachers were designated in the regulations and registers of

the Military Academy as first teacher and second teacher, respectively, the first teacher being the head of the department. In 1846 the head of the department was made professor by virtue of an act of Congress approved August 8, 1846, which provided that the teacher of drawing and the first teacher of French at the Military Academy shall hereafter be, respectively, professor of drawing and professor of the French language.

The remaining teacher (Hyacinthe R. Agnel) was, however, still designated as second teacher until his appointment, May 16, 1848, as professor of the French language, to succeed Professor Berard, who died May 6, 1848. From May 16, 1848, no more teachers were appointed.

The teaching force of the department from March, 1818, until the appointment of Professor Berard as professor in 1846, consisted of the two teachers, permanent officers of the Military Academy, and such number of officers of the Army and Cadets as was deemed necessary detailed as assistants in the department.

In the early part of this period recommendations and efforts were made at several times for the appointment of an additional teacher of the French language, but Congress failed to create the office. These recommendations were evidently based on the belief, quite prevalent in that day, that instruction in French should be given by a native of France. In accordance with this belief, Théophile d'Orémieulx, a native of France, was appointed an officer of the Army, receiving the commission of second lieutenant, First Infantry, and detailed as an assistant in the department. He resigned December 8, 1856, having risen to the rank of captain, though serving continuously at the Academy and in the department. Since December 8, 1856, the assistants in the department have invariably been officers of the Army detailed for that purpose, except in some years when Cadets were detailed in addition to the officers already serving as assistants. In 1860 the head of the department, Professor Agnel, in his statement to the Congressional committee of that year, gave strong reasons in favor of having officers of the Army

as instructors in preference to having natives, his reasons having been based both on his experience and on theory.

During the period above mentioned (from 1818 to 1846) the officers and Cadets detailed as assistants in the department were designated as assistant teachers. From 1848, the date of the appointment of the second teacher as professor, the senior officer was designated as assistant professor and the others as acting assistant professors. Professor Agnel served as the head of the department from the date of his appointment as professor, May 16, 1848, to his death, February 10, 1871, thus having a service as professor of twenty-three years; or, including his service as second teacher, from February 4, 1840, the date of his appointment, a total of thirty-one years' service in the department. He was succeeded by George L. Andrews, brigadier-general and brevet major-general of volunteers, a distinguished graduate of the Military Academy, who was appointed professor February 28, 1871, and who served as head of the department until its incorporation with the department of the Spanish language June 30, 1882. He then became the first professor of modern languages and served as head of that department until he was retired, August 31, 1892, thus having a total service in the departments of the French language and of modern languages of twenty-one years.

He was succeeded by Captain Edward E. Wood,[a] who was appointed professor of modern languages October 1, 1892.

[a] Captain Wood a graduate of the class of 1870, before his appointment was an officer of cavalry and had served under different details for thirteen years as an assistant in the departments of French and of modern languages, including two tours of service as assistant professor of French and two as assistant professor of Spanish.

The following table gives the different heads of the department from its organization in 1803:

Appointment and name.	Army rank when appointed.	Term of service.		Remarks.
		From—	To—	
DEPARTMENT OF FRENCH.				
First teachers [a]				
1. F. D. Masson		July 12, 1803	Apr. 15, 1810	
2. Florimond Masson		Apr. 15, 1810	Jan 3, 1815	Resigned.
3. Claudius Berard		Jan 3, 1815	Aug 8, 1846	Appointed professor.
Professors [b]				
4. Claudius Berard, first teacher of French.		Aug 8, 1846	May 6, 1848	Died.
5. Hyacinthe R. Agnel, second teacher of French.		May 16, 1848	Feb. 10, 1871	Do.
6. George L. Andrews	Brevet major-general of volunteers.	Feb. 28, 1871	June 30, 1882	Professor of modern languages
DEPARTMENT OF MODERN LANGUAGES [c]				
Professors.				
7. George L. Andrews, professor of French.		June 30, 1882	Aug 31, 1892	Retired.
8. Edward E. Wood	Captain, Eighth Cavalry.	Oct. 1, 1892		

[a] The teachership of French, created by law of February 28, 1803.
[b] The professorship of French, created by law of August 8, 1846.
[c] The professorship of modern languages, created by law of June 23, 1879, went into effect June 30, 1882.

Time Allotted to Instruction in the French Language.

Owing to the lack of complete records relating to the early years of the Military Academy, I am unable to give with exactness and certainty the amount of time allotted to instruction in the French language previous to 1824. From 1803 until 1812 it seems that there were no annual classes. Cadets remained at the Academy for different periods, varying from six months to six years, before they were graduated, the length of time depending upon their previous preparation and upon their capacity. The teaching appears to have been mainly individual, and some Cadets supplemented it by private lessons. The French language seems to have been practically a voluntary study, as it was not a requisite for graduation, as appears from the fact that in some years the examinations therein were passed over for the reason that all the Cadets had not had the same advantages with respect to

their acquirements on entering the Academy. With reference to the hours of recitation, the only information thereon I have been able to obtain is that in 1805 recitations in French were from 11 a. m. to 1 p. m. (probably recitations of one hour), and alternated with drawing, the teacher of French having at that time charge of the instruction in the latter branch until the appointment of a teacher of drawing.

Although in the reorganization of the Military Academy in 1812 provision was made for annual classes, and for examinations for passing into the next class and for graduation, yet it does not appear that these provisions were rigidly and systematically carried out until 1817. From the above it should seem that the results of the instruction in French before 1817 could not have been uniformly satisfactory, and it has been stated that at the examination in 1817 but few Cadets could translate with tolerable facility the easiest French author.

From 1817 dates the definite establishment at the Military Academy of annual classes, of uniform and systematic instruction, of regular allotments of time, and of examination for passing from class to class and for graduation.

The earliest official record of a recommended allotment of time to instruction in the French language appears in the report of the Academic Board made July 1, 1816, which states what should be considered as a complete course of education at the Military Academy. In this report it is recommended that French be studied the first year (fourth class) in connection with English, and that it be completed the second year (third class).

The following table (p. 317) gives the various changes in the time allotted to instruction in the French language until June 30, 1882, the allotments previous to 1824 being either unknown or considered as probable; from 1824 they are taken from records.

From—	To—	Recitations (one hour each)	Number and hours.		Preparation—time of study at quarters (two hours per lesson).
1803	1817	Not known			
1817	1820	Probable; first year (fourth class), recitations in afternoon, alternating with English	90	310	20
		Second year (third class), recitations daily in forenoon	220		
1820	1824	Probable; first year (fourth class), recitations daily five days per week	180	360	720
		Second year (third class), recitations daily five days per week	180		
1824	1826	First year (fourth class), recitations daily in afternoon	180	400	800
		Second year (third class), recitations daily in forenoon	220		
1826	1845	First year (fourth class), recitations daily in afternoon	180	290	580
		Second year (third class), recitations in forenoon, alternating with English or history	110		
a 1845	*a* 1855	First year (fourth class), recitations from January to June in afternoon, alternating with English studies	82	272	544
		Second year (third class), recitations daily in forenoon	220		
a 1855	*a* 1861	Five years' course adopted in 1854; went into effect in French, September 1, 1855. Second year (fourth class), recitations daily in afternoon	188	238	476
		Third year (third class), recitations from September to January in forenoon, alternating with Spanish	53		
a 1861	*b* 1867	Four years' course; first year (fourth class), recitations from January to June in afternoon, alternating with English	82		
		Second year (third class), recitations daily in forenoon	220	272	544
b 1867	*c* 1877	First year (fourth class), recitations daily in afternoon	180	290	580
		Second year (third class), recitations in forenoon, alternating with Spanish	110		
a 1877	*a* 1878	During this period 60 lessons were given to English studies from French	230	230	460
a 1878	*c* 1882	First year (fourth class), from January to June, three recitations per week in afternoon	60	280	560
		Second year (third class), recitations daily in forenoon	220		

a September 1. *b* July 1. *c* June 30.

Instruction, Text-Books, Etc.

As before stated, but little is known concerning the amount and kind of instruction in the French language previous to 1817. The division of the Cadets into annual classes was not strictly observed even after 1812, nor were examinations for passing from one class to another or for graduation systematically required. As stated, the examinations in French were sometimes passed over on the ground that the Cadets were not on an equality as regards knowledge of the language when they entered the Academy. As a result, the study of the language with respect to application must have been practically voluntary. The amount of instruction appears to have varied according to the capacity and previous knowledge of the Cadet and to have been mainly individual in its character.

In some cases it was supplemented by private tuition. The only definite information I have been able to obtain concerning the kind of instruction is that about 1814 it consisted in reading aloud for the pronunciation and accent, and in writing from dictation for the orthography. There was but one teacher for all the Cadets undergoing instruction in French. His vernacular being that language, the embarrassment and difficulties experienced by the learner from differences of construction and analysis would neither be appreciated nor removed. As a result of the above circumstances, the examination in 1817 appears not to have been satisfactory.

The only information that I have been able to obtain concerning the text-books during this period is that Masson's French Grammar and Masson's French Reader were used in 1814.

Systematic instruction, regular allotment of time, requirement of examinations, and division of classes into sections for recitation date from 1817.

March 1, 1818, a second teacher of French was provided, and from that date until the establishment of a professorship of French, August 8, 1846, the instruction was given by the two teachers, supplemented by the detail of such number of officers and, at times, Cadets as was required. From 1846, or rather from the appointment of Second Teacher Agnel to the professorship of French, May 16, 1848, the assistants of the head of the department were officers of the Army, supplemented at times by Cadets detailed as instructors.

Previous to the January examination in 1821 the third and fourth classes in French were examined together, the sections being numbered consecutively throughout the two classes. Beginning with the above-named examination and down to the present day, the two classes have always been examined separately, the sections being numbered consecutively in each class.

The earliest record of what was considered to be the requirements of a course of French at the Military Academy is found in the report made by the Academic Board, July 1, 1816, which states as follows: A course of French shall consist in pronouncing the language tolerably, and translating from

French into English, and from English into French, with accuracy.

January 29, 1820, the Academic Board adopted the report of the committee appointed March 1, 1819, to revise the course of studies. This report stated the requirements of the French course to be as follows: The course of French shall consist in teaching to pronounce that language tolerably, to read and translate French into English, and to convert English into French. The elementary instruction in this department will be conveyed nearly in like manner to all the sections. An extent of French reading, however, will be admitted in the higher sections proportional to their progress and capacity.

The system of relative weights to be given the different subjects of instruction at the Military Academy was first adopted June 2, 1818. The weight given to the French language was 1, that of mathematical studies being 2.

The following programme of the course in French and requirements thereof was adopted by the Academic Board at its meeting March 13, 1840:

1. The elements of pronunciation, so as to impart a thorough knowledge of all the sounds of the language.

2. Reading with a correct pronunciation and the proper modulation of the voice.

3. French grammar in its general principles and particular rules.

4. Exercises in English translated into French on the blackboard, so as to reduce all the rules of the language to familiar practice.

5. Reading and translating into English the whole of the Leçons Françaises and as many volumes of Gil Blas as the capacity and progress of the pupils will allow.

6. Translating into French Murray's English Reader.

N. B.—This last exercise is now (1840) confined to the first section of the third class.

7. Speaking French. This can not be done except with the upper sections of the fourth and third classes.

In 1853 the requirements were as follows: French grammar; reading French with a correct pronounciation; translating English into French and French into English accurately.

In 1882, when incorporated with Spanish, the requirements were as follows:

French language.—Grammar; reading and writing French; translating (from text and orally) English into French and French into English.

From between 1817 and 1821 up to 1859 instruction was imparted by lessons assigned in the grammar and in the reader, the lessons varying in length and difficulty proportionate to the progress and capacity of the Cadet. This progress and capacity would be indicated by the number of his section. During the recitation of one hour certain members of the section would be given subjects in the grammar lesson, comprising rules and principles and their application by illustrative exercises, to be put upon the blackboard and explained and recited upon orally. The remaining members of the section would be called upon to read the reading lesson, reading aloud as much of the French text as the time permitted and then giving the English translation, either literal or free, as might be required. A due alternation was observed in assigning subjects in grammar and in reading. Pronunciation was acquired by the information imparted therein, and by the practice in reading and in oral recitation.

In 1842 an attempt was made to introduce a course of military reading by the adoption of Rocquancourt's Cours Élémentaire d'Art et d'Histoire Militaire as a text-book in the department, but the committee of the Academic Board reported against it March 1, 1842, on the ground that its style had not sufficient variety, being only an enumeration of military events, and that it presupposed on the part of the student too great a knowledge of military matters and extensive reading; that literary works best possess the qualifications for studying a language.

In 1849 a verb book (Bolmar's) was adopted and used until 1872, which, from its clear and systematic arrangement and explanation of French verbs, both regular and irregular, greatly facilitated the instruction in that difficult subject.

In addition to the text-book used as a grammar, Agnel's Elementary and Practical French Tabular System was adopted

in 1859 and used until December 14, 1883, when it was discontinued on account of being out of print. This most valuable and useful text-book, entirely original in method and scope, was devised and written by Professor H. R. Agnel, then head of the department. It had for its object the methodical classification of the defining words of the language, the important subject of the place and order of personal pronouns, a scheme of derivation for the ready use of regular and irregular verbs, the use of the past tenses of the indicative, the difference between French and English prepositions, the use of the subjunctive mood, and a course of idioms; the whole so framed as to harmonize with the portion of the grammar rules and exercises studied simultaneously with the tables during the whole course of instruction. Each table as successively studied was written out on the blackboard by the Cadet from memory, recited upon and explained by him thoroughly in all its bearings. The practical exercises for each table, arranged in the form of question and answer, were translated into French and written out in exercise books by the Cadet while studying in quarters. These exercise books were then given to the instructor of the section, who corrected the exercises and returned the book to the Cadet. From 1872 these exercises were written upon the blackboard during recitation and recited upon orally.

After the introduction of the tabular system the Cadets when writing a French verb were required to write in addition its primitive tenses.

After Professor Andrews became head of the department, February 28, 1871, many changes were made in the text-books previously used, their places being supplied by those of more modern date and of better adaptation to the requirements of the course. These changes are shown in the table given below. The methods of instruction were made more uniform throughout the classes undergoing instruction. Great thoroughness was required of the Cadets in their comprehension of the grammatical principles and rules, of the construction of the language, and accuracy in their explanation and application thereof. An accurate and natural English translation was required in translating from the reader, accuracy

was exacted in pronunciation and clearness in enunciation, and the average acquirement of the language by the Cadets was considerably increased, especially in the sections below the first.

As previously stated, the exercises in the tabular system from 1872 were no longer written in exercise books, but were written upon the blackboard during recitation and explained and recited upon orally, thus giving more practice in pronunciation and a better opportunity to verify the Cadet's comprehension of the subject. The method of examination was also changed. Previous to January, 1873, the examinations in French were oral, each Cadet at examination being given a subject in grammar to explain and illustrate upon the blackboard, and also being required to read in French and translate orally a portion of the course in reading studied during the preceding term. From the January examination, 1873, the examination in grammar and in the tabular system (as long as that text-book was used) was made written. The examination in reading remained oral.

The following table gives the text-books used in the department of the French language until June 30, 1882:

Year	Text-books		Remarks
1815–1820	Masson's French Grammar.	Masson's French Reader	Not known when these books were first used or when discontinued, but known that they were used in 1814
	Third Class	*Fourth class*	
1821	Exercises in Wonostrocht's French Grammar; The Poetry of the Lecteur Français; Voltaire's Charles XII; Gil Blas, Vols. II, III, IV.	Wonostrocht's French Grammar; Lecteur Français; Gil Blas, Vol. I.	Wonostrocht's Grammar and the Lecteur Français discontinued between 1820 and 1832, the exact year not known.
1832	Berard's French Grammar; Voltaire's Charles XII; Gil Blas, Vols. II, III, IV.	Berard's French Grammar; Berard's Leçons Françaises; Gil Blas, Vol. I.	The exact year when adopted not known.
1841	Levizac's French Grammar; Berard's Leçons Françaises; Gil Blas, Vols. II, III, IV; Murray's English Reader (used in first section only).	Levizac's French Grammar; Berard's Leçons Françaises; Gil Blas, Vol. I.	Gil Blas discontinued September 27, 1841. Murray's Reader adopted April 7, 1840.
1845	Levizac's French Grammar; Berard's Leçons Françaises; Voyage du Jeune Anacharsis; Murray's English Reader.	Levizac's French Grammar; Berard's Leçons Françaises; Voyage du Jeune Anacharsis.	Voyage du Jeune Anacharsis adopted September 27, 1841.
1848	Le Brethon's Guide to the French Language; Chapsal's Leçons et Modèles de Littérature Française.	Le Brethon's Guide to the French Language; Berard's Leçons Françaises.	Le Brethon adopted September 1, 1847. Chapsal adopted August 22, 1848.

Year.	Text-books.		Remarks.
	Third class—Continued.	*Fourth class*—Continued	
1849	Bolmar's Levizac's French Grammar and Verb Book; Chapsal's Leçons et Modèles de Littérature Française; Rowan's Morceaux Choisis des Auteurs Modernes.	Bolmar's Levizac's French Grammar and Verb Book; Berard's Leçons Françaises.	Bolmar's Levizac and Rowan adopted January 16, 1849.
1852	Same, with addition of Berard's Leçons Françaises.	Same.	
1856	Bolmar's Levizac's French Grammar and Verb Book; Chapsal's Leçons et Modèles de Littérature Française; Rowan's Morceaux Choisis des Auteurs Modernes.	Same, with addition of Chapsal's Leçons et Modèles de Littérature Française; Spiers and Surenne's French and English Dictionary. Used for reference in both classes.	Spiers and Surenne's Dictionary adopted June 2, 1856. For reference.
1859	Bolmar's Levizac, etc.; Rowan's Morceaux, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Bolmar's Levizac, etc.; Chapsal's Leçons, etc.; Rowan's Morceaux, etc., Berard's Leçons, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Agnel's Tabular System used in manuscript from 1859. Adopted in printed form July 1, 1865.
1862	Bolmar's Levizac, etc.; Berard's Leçons etc.; Chapsal's Leçons etc.; Rowan's Morceaux, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Bolmar's Levizac, etc.; Berard's Leçons, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	
1868	Bolmar's Levizac, etc.; Chapsal's Leçons, etc.; Rowan's Morceaux, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Bolmar's Levizac, etc.; Berard's Leçons, etc.; Chapsal's Leçons, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	A second course of idioms added to the tabular system in 1867. In third class Bolmar's Levizac, Chapsal and Berard's Leçons, etc., were discontinued June 24, 1872.
1872	Borel's Grammaire Française; Reynal's Verb Book; Rowan's Morceaux, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Bôcher's Otto's French Grammar; Reynal's Verb Book; Bôcher's French Reader; Bôcher's College Series of French Plays, Vols. I and II; Agnel's Tabular System; Spiers and Surenne's French Dictionary.	Bôcher's Grammer, Reader, French Plays; Borel's Grammaire and Reynal's Verb Book were adopted June 24, 1872. Bôcher's Grammar discontinued July 3, 1878.
1879	Keetels' Analytical and Practical French Grammar; Reynal's Verb Book; Borel's Grammaire Française; Bôcher's College Series of French Plays, Vols. I and II; Rowan's Morceaux, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Keetels' Analytical and Practical French Grammar; Reynal's Verb Book; Bôcher's French Reader; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Reynal's Verb Book and Bôcher's Reader discontinued November 1, 1881.
1882	Keetels' Analytical and Practical French Grammar; Borel's Grammaire Française; Bôcher's College Series of French Plays, Vols. I and II; Rowan's Morceaux, etc.; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Keetels' Analytical and Practical French Grammar; Keetels' Analytical French Reader; Agnel's Tabular System; Spiers and Surenne's Dictionary.	Agnel's Tabular System discontinued December 14, 1883.

Department of the Spanish Language.

The Secretary of War directed, in a letter from the inspector of the Military Academy dated July 5, 1854, that the Academic Board arrange a programme of studies for a five years' course, and observe therein certain conditions, among which was the introduction of the Spanish language. The programme of studies drawn up by the Academic Board in accordance with the above instructions was subsequently approved by the Secretary of War and went into operation September 1, 1854. The Spanish language as one of the courses of instruction at the Military Academy therefore dates from September 1, 1854.

Previous to this date, however, it appears that there had been some thought of introducing the study of this language. A letter from the Superintendent of the Military Academy, dated January 28, 1824, to the inspector of the Academy acknowledges the receipt of a letter from the latter, in which it was stated that the authorities at Washington proposed to add to the Academic Board two professors (or teachers) of the Spanish language. In his reply the Superintendent states that the objection to the introduction of the language was the lack of time, unless some studies were dropped.

Although the Spanish language as a part of the course of studies dates from September 1, 1854, yet from the fact that in the arrangement of studies it was put in the third year (third class), instruction in it did not begin until September 1, 1856.

From September 1, 1856, to the establishment of a professorship of Spanish by Congress February 16, 1857, and until the appointment of a professor, the instruction in that language was placed under charge of the professor of the French language, who was styled the professor of French and Spanish, and the department was styled the department of French and Spanish.

The act of Congress approved February 16, 1857, provided that "there shall be appointed at the Military Academy, in addition to the professors authorized by the existing laws, a professor of Spanish."

Under the provisions of this act, Patrice De Janon was appointed professor of Spanish July 1, 1857. With the exception of the period from September 16, 1863, to March 4, 1865, during which he was out of service, Professor De Janon was the head of the department until his retirement June 30, 1882, when the department of Spanish was incorporated with the department of the French language into the department of modern languages.

Professor De Janon was the only professor of Spanish under the above act of Congress, and his total service as head of the department extended over twenty-three years.

From September 16, 1863, to July 27, 1864, the department was again placed under charge of the professor of the French language. From July 27, 1864, to March 4, 1865, when Professor De Janon returned, it was under charge of Capt. Edward R. Platt, Second United States Artillery, and major, United States Volunteers, as acting professor.

The following table gives the different heads of the department from September 1, 1856:

Name	Army rank when appointed	Term of service. From	To—	Remarks
Professors.				
Hyacinthe R. Agnel	Professor of French	Sept. 1, 1856	July 1, 1857	Relieved.
Patrice De Janon	Sword master	July 1, 1857	Sept. 16, 1863	Out of service.
Hyacinthe R. Agnel	Professor of French	Sept. 16, 1863	July 27, 1864	Relieved.
Acting professor.				
Edward R. Platt	Captain, Second Artillery; major, United States Volunteers.	July 27, 1864	Mar. 4, 1865	Do.
Professor.				
Patrice De Janon		Mar. 4, 1865	June 30, 1882	Retired.

Time Allotted to Instruction in the Spanish Language.

When the instruction in Spanish began, September 1, 1856, the time allotted to it in the programme of studies drawn up and approved in 1854 for the five-year course was as follows:

In the third year (third class), recitations of one hour each from 11 a. m. to 1 p. m., alternating with French, from September to January; daily recitations of one hour each from

11 a. m. to 1 p. m. from January to June; being a total of about 170 recitations.

When the change from the five-year course to one of four years finally took effect, September 1, 1861, the time allotted to Spanish in the new arrangement of studies was as follows:

In the fourth year (first class), recitations of one hour each from 11 a. m. to 1 p. m., alternating with riding, from September to June, being a total of about 110 recitations. As Spanish was changed from the third year to the fourth year, the first class was not reached until September 1, 1862; consequently from September 1, 1861, to September 1, 1862, no instruction was given in Spanish.

In the modification of the arrangement of the course of studies caused by discontinuing English studies, which went into effect September 1, 1867, instruction in Spanish was changed from the fourth year (first class) to the second year (third class), and the following allotment of time was made: In the second year (third class) recitations of one hour each from 11 a. m. to 1 p. m., alternating with French, from September to June, being a total of about 110 recitations.

In the rearrangement of the course of studies made necessary by the restoration of English studies in 1877, instruction in Spanish was, on the recommendation of the Academic Board approved June 18, 1878, again changed from the second year (third class) to the fourth year (first class), and the following allotment of time was made: In the fourth year (first class), recitations of one hour each, from 11 a. m. to 1 p. m., alternating with riding from September to June, being a total of about 110 recitations.

As Spanish was changed from the second year to the fourth year, the first class was not reached until September 1, 1880; consequently from September 1, 1878, to September 1, 1880, no instruction was given in Spanish.

This allotment of time was remaining in force June 30, 1882, when the department of Spanish was incorporated with the department of the French language into the department of modern languages.

The following table gives the various changes in the allotment of time to Spanish from September 1, 1856:

From—	To—	Recitations (one hour each).	Number of recitations.	Preparation—time of study at quarters (two hours per lesson).
Sept. 1, 1856	Sept. 1, 1861	Five years' course adopted in 1854; went into effect in Spanish September 1, 1856. Third year (third class), recitations from September to January, alternating with French in forenoon; from January to June, recitations daily in forenoon	170	340
Sept. 1, 1862	Sept. 1, 1868	Four years' course adopted in 1861; went into effect in Spanish September 1, 1862. Fourth year (first class), recitations in forenoon, alternating with riding	110	22
Sept. 1, 1868	Sept. 1, 1880	Change went into effect in Spanish September 1, 1868. Second year (third class), recitations in forenoon, alternating with French	110	220
Sept. 1, 1880	June 30, 1882	Change went into effect in Spanish September 1, 1880. Fourth year (first class), recitations in forenoon, alternating with riding	110	220

Instruction, Text-Books, Etc.

The instruction in Spanish followed as closely as possible the same system and methods previously described as having been followed in the department of the French language previous to the introduction of the tabular system in 1859. The examinations were oral and conducted in the same manner as the examinations in French previous to 1873. From September, 1857, to September, 1858, the professor had no assistants and was the only instructor in the department. The large sections necessitated thereby made it impracticable to give each Cadet the requisite amount of individual instruction and practice. From 1858 assistants were provided.

The requirements of the course in Spanish until the absorption of the department June 30, 1882, were as follows: Spanish grammar; reading and writing Spanish; translating (from text and orally) English into Spanish and Spanish into English.

The following table gives the text-books used in the department until June 30, 1882:

Year	Text-books.	Remarks
1880	Third class (third year): Josse's Grammar, Romer and Camacho's Spanish Reader, Ollendorff's Oral Method as applied to Spanish by Velazquez.	Adopted June 2, 1880. Romer and Camacho's Reader discontinued July 16, 1880.
1881	Josse's Grammar; Morales's Progressive Spanish Reader; Ollendorff's Oral Method, etc.	Morales's Reader adopted July 16, 1881. Josse's Grammar discontinued September 1, 1874.
1881	First class, same as above.	
1881	Same; Seoane's Neuman and Baretti's Spanish Dictionary.	For reference.
1882	Third class, same as above.	
1882	Vingut's Guide to Spanish and English; Ollendorff's Oral Method, etc.; Morales's Reader; Seoane, etc.	
1882	First class, same as above.	
1882	Vingut's Guide to Spanish and English; Ollendorff's Oral Method, etc.; Morales's Progressive Spanish Reader; Seoane's Neuman and Baretti's Spanish Dictionary.	

English Studies.

English studies were restored as a part of the course of instruction at the Military Academy June 26, 1877, and from that date until June 18, 1878, were under charge of the chaplain and professor of history, geography, and ethics, although the instructors therefor, with the exception of the assistant professor of geography, history, and ethics, were taken from the department of French. June 18, 1878, the instruction in English studies was placed under charge of the professor of French, who from that date, and until the organization of the department of modern languages, was styled the professor of French and English studies, and the department was styled the department of the French language and English studies.

When the instruction in English studies was transferred to the department of the French language, June 18, 1878, the following allotment of time was made therefor: English studies, first year (fourth class), September to January, daily recitations of one hour each, from 2 p. m. to 4 p. m., being about 84 recitations; first year (fourth class), January to June, recitations of one hour each, from 2 p. m. to 4 p. m., two days each week, being about 40 recitations; a total of 124 recitations, with a preparation of two hours' study in quarters for each lesson, or two hundred and forty-eight hours. This

allotment was in force at the organization of the department of modern languages.

English studies from June 18, 1878, comprised instruction in English grammar, rhetoric, and composition, and the use and meaning of words and constructions. Hart's Rhetoric and Abbott and Seeley's English Lessons for English People had been used as text-books during the academic year 1877–78. These two books were retained, and to them was added, July 3, 1878, Whitney's Essentials of English Grammar. Abbott's How to Write Clearly was added to the above, January 16, 1880, and was used in place of certain portions of English Lessons for English People.

The above text-books continued in use to the date of the organization of the department of modern languages.

The examinations were oral at January and written at June.

The requirements of the course in English studies June 30, 1882, were as follows: English grammar; rhetoric; rules and exercises on composition; study of words and sentences.

Department of Modern Languages.

The department of modern languages at its organization, June 30, 1882, was made to comprise the three following branches of instruction: (1) English studies; (2) the French language; and (3) the Spanish language.

The requirements in each branch were the same as those previously described under the respective heads of the above three branches.

The following table gives the respective heads of the department from its organization to the present date:

Name.	Army rank when appointed	Term of service.		Remarks
		From—	To—	
George L. Andrews	Professor of French	June 30, 1882	Aug. 31, 1892	Retired.
Edward E. Wood	Captain, Eighth Cavalry	Oct. 1, 1892		

Time allotted to the different branches of study.

The time allotted to instruction in English studies, the French language, and the Spanish language at the organization of the department has been given under those respective

heads. It remained in force for all the above branches until August 27, 1883, when the Secretary of War approved the recommendation of the Academic Board of March 14, 1883, that the study of history be introduced and that it be allotted the time hitherto allotted to Spanish, from September to January in the first class year.

From August 27, 1883, therefore, the allotment of time was as follows:

English studies.—Daily recitations of one hour each, from 2 p. m to 4 p. m., September to January, fourth class year; and two recitations per week from 2 p. m. to 4 p. m., one hour each, from January to June, same year, or 124 recitations.

French language.—Three recitations per week of one hour each, from 2 p. m. to 4 p. m., from January to June, fourth class year, or 60 recitations. Daily recitations of one hour each, from 11 a. m. to 1 p. m., from September to January, third class year, or 220 recitations, being a total of 280 recitations.

Spanish language.—Recitations of one hour each from 11 a. m. to 1 p. m., alternating with riding, from January to June, first class year, or 60 recitations.

The above allotment remained in force until 1893. June 19, 1893, the Academic Board adopted a programme rearranging the order and time of certain studies at the Military Academy, which received July 30, 1893, the approval of the Secretary of War for so much as related to the department of modern languages. The allotment of time then made to the department is the one now in force, and will be given in the description of the present course. This new programme took effect September 1, 1893, for English studies; January 1, 1894, for the French language; March 1, 1895, for the Spanish language.

The first class, however, still continued under the previous programme as regards time, lessons, and text-books until June, 1896, both the third and first classes, therefore, undergoing instruction simultaneously during the years 1895 and 1896.

CADET BARRACKS. BUILT 1851.

The following table gives the changes in the time allotted from June 30, 1882, exclusive of the present arrangement:

From—	To	Recitations (one hour each)	Number and hours		Preparation (time of study at quarters (two hours per lesson)
June 30, 1882	Sept. 1, 1883	English studies: First year (fourth class), recitations daily in afternoon, September to January; January to June, two recitations per week in afternoon	124	124	248
	....do....	French language: First year (fourth class), January to June, three recitations per week in afternoon	60	280	560
		Second year (third class), September to June, daily recitations in forenoon	220		
	Jan. 1, 1884	Spanish language: Fourth year (first class), September to June, alternating with riding, in forenoon	110	110	220
Sept. 1, 1883	Sept. 1, 1893	English studies: First year (fourth class), recitations daily in afternoon, September to January; January to June, two recitations per week in afternoon	124	124	248
	Jan. 1, 1894	French language: First year (fourth class), January to June, three recitations per week in afternoon	60	280	560
		Second year (third class), September to January, daily recitations in forenoon	220		
Jan. 1, 1884	Mar. 1, 1895	Spanish language: Fourth year (first class), January to June, recitations in forenoon, alternating with riding	60	60	120

Instruction, Text-Books, Etc.

From the organization of the department, June 30, 1882, to the reorganization of the course of studies therein, July 30, 1893, the instruction in English studies and the French language followed the same methods as previously used, and which are described above under those heads. The same text-books in English studies and the French language remained in use, with the exception that Agnel's Tabular System was discontinued December 14, 1883, on account of having gone out of print. Its place was supplied during this period by selecting for each lesson an exercise selected from the French Reader. This exercise was given to the Cadets in English and was required to be written in French upon the blackboard, recited upon, and explained. On the introduction of new text-books in 1893, this practice was discontinued. Rowan's Morceaux Choisis was also discontinued in 1885, and its place supplied by Roemer's Cours de Lecture et de Traduction.

In Spanish the former text-books (Vingut's Guide to Spanish, Ollendorff's Oral Method by Velazquez, and Morales's Spanish Reader) were discontinued December 8, 1883, and

their place supplied by the introduction of Knapp's Spanish Grammar and Knapp's Modern Spanish Readings. The latter were text-books of more modern date and were better adapted to the requirements of the course. Thoroughness and accuracy were required in recitations, both in grammer and in reading, and the system and method of instruction were made to harmonize with the system and method followed in English studies and in French.

The method of examination in English studies and in French remained during this period the same as before the organization of the department of modern languages, that is to say, as follows:

English studies.—January examination, oral; June examination, written.

French.—All examinations, both oral and written.

In Spanish all examinations were both oral and written, from and including that of January, 1883.

The following table gives the different text-books used in the department until July 30, 1893:

From—	To—	Third class.	Fourth class.	Remarks.
1882	1893	.....	English: Whitney's Essentials of English Grammar; Hart's Composition and Rhetoric; Abbott & Seeley's English Lessons for English People; Abbott's How to Write Clearly.	Whitney's Grammar discontinued July 30, 1893. Abbott & Seeley's English Lessons discontinued July 30, 1893. Hart's Rhetoric discontinued July 30, 1893.
1882	1885	French: Keetels' Analytical and Practical French Grammar, Borel's Grammaire Française; Bôcher's College Series of French Plays, Vols. I and II; Rowan's Morceaux Choisis des Auteurs Modernes; Agnel's Tabular System; Spiers and Surenne's French Dictionary	French: Keetels' Analytical and Practical French Grammar; Keetels' Analytical French Reader; Agnel's Tabular System; Spiers and Surenne's French Dictionary.	Aguel's Tabular System discontinued December 14, 1883. Rowan's Morceaux Choisis discontinued 1885.
1885	1894	Keetels' Grammar; Borel's Grammaire; Bôcher's Plays, Vols. I and II; Roemer's Cours de Traduction et de Lecture, Vols. I and II; Spiers, etc.	Keetels' Grammar; Keetels' Reader; Spiers, etc.	Keetels' Reader discontinued July 30, 1893. Bôcher's College Series of French Plays, Vol. I, discontinued July 30, 1893.
1882	1883	Spanish (first class): Ollendorff's Oral Method by Velazquez; Vingut's Guide to Spanish; Morales' Spanish Reader; Seoane's Neuman and Baretti's Spanish Dictionary.		Discontinued December 8, 1883.
1883	1896	Knapp's Spanish Grammar; Knapp's Modern Spanish Readings; Seoane's Neuman and Baretti's Spanish Dictionary.		Do.
		N. B.—Spanish in first class continued until June, 1896.		

The Present Course (1896).

The department of modern languages at the present time comprises the following branches of study, taught in the following order and with the following allotment of time:

First. English studies. Taught in first year (fourth class) from September to January, with daily recitations of one hour each, from 2 p. m. to 4 p. m., and with a total of 84 recitations.

Second. The French language. Taught in first year (fourth class) from January to June, with daily recitations of one hour each, from 2 p. m. to 4 p. m., with 100 recitations; in second year (third class) from September 1 to March 1, with daily recitations of one hour each, from 11 a. m. to 1 p. m., with 142 recitations, or a total number of recitations in the French language of 242.

Third. The Spanish language. Taught in second year (third class) from March 1 to June, with daily recitations of one hour each, from 11 a. m. to 1 p. m., with a total of 78 recitations.

ENGLISH STUDIES.

The requirements of the course in English studies, as given in the academic regulations of 1894, are as follows: Rhetoric; rules and exercises on composition; study of words and sentences; study of synonyms; history of the English language; history of English literature.

From the above requirements and the authorized text-books, the course in English studies is divided into the following subjects:

1. Rhetoric; study and use of words; rules and exercises in composition.
2. Study of synonyms.
3. History of the English language and literature.

TEXT-BOOKS.

The text-books adopted, with the date of their adoption, for the course in English studies are given below in the order in

which they are used. The order and numbers correspond to the order and numbers of the subjects given above:

1. Williams's Rhetoric and Composition, adopted July 30, 1893; Abbott's How to Write Clearly, adopted January 16, 1880.

2. Smith's Synonyms Discriminated, adopted July 30, 1893.

3. Meiklejohn's English Language, adopted July 30, 1893.

BOOKS OF REFERENCE.

Roget's Thesaurus of English Words, adopted July 30, 1893; Smith's Synonyms Discriminated, adopted July 30, 1893; Webster's Dictionary.

The above books of reference are used as such throughout the entire course of the three languages taught in the department. Webster's Dictionary is furnished to the Cadets not merely for use in their language studies, but for use during their entire four years at the Academy.

THE FRENCH LANGUAGE.

The requirements of the course in French, as given in the academic regulations of 1894, are as follows: Grammar; reading and writing French; study and use of idioms; military terms; translating (from text and orally) English into French and French into English; study of English synonyms.

The instruction in French is divided into the following courses:

1. First course: First year (fourth class), January to June, daily recitations of one hour each, from 2 p. m. to 4 p. m., with 100 recitations.

2. Second course: Second year (third class), September to January, daily recitations of one hour each, from 11 a. m. to 1 p. m., with 102 recitations.

3. Third course: Second year (third class), January to March 1, daily recitations of one hour each, from 2 p. m. to 4 p. m., with 40 recitations.

THE FIRST COURSE.

One hundred lessons; 66 advance, 34 review, the proportion between advance and review varying in different text-books.

Text-books.—De Peiffer's French Pronunciation, adopted July 30, 1893; Keetels' Analytical and Practical French Grammar, adopted July 3, 1878; Castarède's Treatise on the Conjugation of French Verbs, adopted July 30, 1893; Roemer's Cours de Lecture et de Traduction, Vol. I, adopted in 1885; Bôcher's College Series of French Plays, Vol. II, adopted June 24, 1872.

Books of reference.—Spiers and Surenne's French Pronouncing Dictionary, adopted June 2, 1856.

SECOND COURSE.

One hundred and two lessons; 68 advance, 34 review, the proportion between advance and review varying in different text-books.

Text-books.—Castarède's Treatise on the Conjugation of French Verbs; Borel's Grammaire Française, adopted June 24, 1872; Hennequin's Lessons in Idiomatic French, adopted July 30, 1893; Bôcher's College Series of French Plays, Vol. II; Roemer's Cours de Lecture et de Traduction, Vol. II, adopted in 1885; Revue Militaire de l'Étranger, six months' subscription each year, adopted July 30, 1893.

Books of reference.—De Peiffer's French Pronunciation; Spiers and Surenne's French Pronouncing Dictionary.

THIRD COURSE.

Forty lessons; all advance, no review.

Text-books.—Castarède's Treatise on the Conjugation of French Verbs; Edgren's Compendious French Grammar, adopted July 30, 1893; Hennequin's Lessons in Idiomatic French; Roemers Cours de Lecture et de Traduction, Volume II; Revue Militaire de l'Etranger; Monday Daily Figaro, three months' subscription each year, adopted July 30, 1893.

Books of reference.—De Peiffer's French Pronunciation; Spier and Surenne's French Dictionary.

THE SPANISH LANGUAGE.

The requirements of the course in Spanish, as given in the Academic Regulations of 1894, are as follows: Grammar; reading and writing Spanish; translating (from text and

orally) English into Spanish and Spanish into English; study of English synonyms.

There is one continuous course of 78 lessons; 52 advance, 26 review, the proportion varying in different text-books.

Text-books.—Knapp's Spanish Grammar, used as verb book and for pronunciation, adopted December 8, 1883; Monsanto and Languellier's Spanish Grammar, adopted July 30, 1893; Mantilla's Spanish Reader, No. 3, adopted July 30, 1893; Eco de Madrid, adopted July 30, 1893; Knapp's Spanish Readings, adopted December 8, 1883.

Books of reference.—Seoane's Neuman and Baretti's Spanish Dictionary, adopted in 1865.

Organization of the Department.

The department, as now organized, comprises the professor of modern languages, head of the department, and seven assistants, who are officers of the Army that have been detailed for such duty. The two senior assistants are by rank assistant professor of the French language and assistant professor of the Spanish language, respectively. As two classes (third and fourth) are undergoing instruction daily in the department, each one of the assistants has assigned to him for instruction three sections, either one section of the third class and two sections of the fourth class or two sections of the third class and one section of the fourth class. The assistant professor of French is the principal assistant as far as relates to the instruction of the fourth class, and the first and last sections in that class are assigned to him for instruction in addition to the section assigned to him in the third class. The assistant professor of Spanish has similar duties assigned to him in the third class, having the first and last sections thereof, as a rule, in addition to the section in the fourth class. The senior of the two assistant professors is a member of the academic board and examining committee, for the purpose of examining Cadets, arranging them in order of merit, and determining the proficiency or deficiency in every branch of study in the department.

The various duties of the head of the department and his assistants are as given in Article V, Academic Regulations of 1894.

THE RECITATION.

The section rooms are the same in size and form as those used in the other departments of instruction at the Military Academy.

THE RECITATION IN ENGLISH STUDIES.

In English studies as many members of the sections are assigned subjects for recitation at the blackboard as the size of the section will permit, reserving one member, and sometimes two, for questions on the lesson of the day or on the lesson of the preceding day. Each Cadet, when his name is called, takes his place in the center of the room facing the instructor, and standing at attention receives his enunciation. He then goes to the particular blackboard assigned to him by the order in which his name was called to receive an enunciation or subject of recitation, the first Cadet called taking the first blackboard to the right of the instructor on the side of the room opposite the latter, the others following in consecutive order from right to left. Immediately upon arriving at his proper blackboard the Cadet writes his name in the upper right-hand corner and under his name the number indicating the order in which he received his enunciation. He then proceeds to put upon the blackboard the work called for by his subject. He is not permitted to write out the subject-matter of his recitation, but is required to write the different heads thereof in the form of a synopsis showing their relation to one another, and is required to make the explanation orally. At each recitation one member of the section is required to write a synopsis of the lesson of the day and another member to write a synopsis of the lesson of the preceding day. When the Cadet is ready for recitation he indicates it by taking the pointer in his hand and standing at the blackboard facing the instructor. Until the first Cadet is called upon to recite

at the blackboard the time has been occupied in questioning those members of the section who were not sent to the blackboard.

When a Cadet at the blackboard is called upon to recite, he first gives from memory the enunciation of his subject in the exact words in which he received it, and then proceeds to explain and illustrate the subject by the knowledge of it that he has obtained by his own study. If his recitation be entirely satisfactory in every respect, he is then told that it is sufficient, and takes his seat. If not so, the instructor then goes over the subject until, by explanation and question, the Cadet understands it.

The work upon the blackboard, including the Cadet's name and number, is required to be written neatly and spelled and punctuated correctly. In the case of illustrative examples and exercises for correction, the whole work, of course, is put upon the blackboard.

THE RECITATION IN FRENCH.

The preliminaries up to and including the questions on the lesson of the day are the same as in English studies. At each recitation, immediately after the preliminary questions, a portion of the time, not to exceed ten minutes from the entrance of the section, and limited, if possible, to five minutes therefrom, is employed for pronunciation exercises and practice.

Each Monday, in the third-class course, this time is employed in dictation exercises, the papers being subsequently corrected and marked by the instructor, and the mark given therefor combined with their mark on the recitation of the day.

Immediately after this daily practice in pronunciation the recitation proper begins. The members of the section are called up in order, and, with the exception of three or four who are reserved for recitations in reading, are given subjects for recitations at the blackboard. These subjects contain grammatical principles to be explained and illustrated and themes and exercises connected therewith, or idioms and

exercises thereon; each subject, however, always requires a tense of a verb to be written on the blackboard in addition to the subject-matter proper. Until the first recitation at the blackboard the time is employed in the recitations in reading by those Cadets who were not sent to the blackboard. After these Cadets have completed their recitation in reading, they are required to write a verb on the blackboard. The recitation at the blackboard is similar in form to that in English studies, except that the subject-matter is all put upon the blackboard, with the exception of explanations.

The recitation in reading is conducted as follows:

1. The Cadet, standing in the center of the room and facing the instructor, reads aloud a portion of the French text as an exercise in pronunciation.

2. He then translates literally or freely, as may be required.

3. The book is then closed, and as an exercise in ear training portions of the French text that he has read, or, when more advanced, portions of French text that he has not read, are read aloud to him by the instructor, the Cadet being required to give, as well as possible, the English translation of what he hears.

In order to counteract the pernicious habit of guessing at the sense without an accurate knowledge of the meaning of each word, and also in order to accustom the Cadet to the order of the words in French (differing so much from the order in English), translations strictly literal are required for the first twenty lessons in reading. After that free translations will be given, the instructor, however, whenever deemed necessary, ascertaining that the Cadet understands thoroughly the literal translation.

Reading at sight is practiced whenever time is available.

THE RECITATION IN SPANISH.

This recitation is conducted in the same manner and by the same methods as in French.

All recitations are marked on the following scale: 3, thorough; 2.5, good; 2, indifferent; 1.5, bad; 1, very indifferent; 0, complete failure.

The different sections in the two classes, varying in number from 17 to 20 and 21, are visited by the head of the department, when practicable, at least once each week.

Review of Present Course (1896).

In the course of instruction as at present arranged in the department the three languages taught follow one another in succession; each language (English, French, Spanish) is taken up and completed before the succeeding one is begun, and no two languages are studied simultaneously by the same class. By being placed, according to the programme of studies, entirely in the first two years at the Academy (fourth and third classes), they are taught in combination with but one other branch of study, mathematics, thereby affording not only the natural and best correlation of studies for mental training during those years, but also the best opportunity for acquirement.

ENGLISH STUDIES.

As the Cadets of the Military Academy are destined to be officers of the Army, the primary aim of their instruction in rhetoric and composition is to give them such information, instruction, and training as will enable them to express themselves clearly and plainly, so that their meaning can not be mistaken, and that it be expressed in the most clear and forcible way. The course in rhetoric and composition is therefore prepared with this aim in view. It comprises the essential principles of punctuation, of the selection and right use of words, of the construction of sentences and the errors to be avoided therein, the principles of paragraphing, the outlining of subjects of composition, the effect and use of figures, and the forms to be observed in letters. All of these are supplemented by examples for practice in application.

As regards oral expression, it is known that errors therein are prevalent among Cadets, though it is doubtful whether they are more so than throughout the country or among students elsewhere. Certainly the Cadets are fair representatives of the average youth of the various schools throughout the United States. It is simply more noticeable to visitors

here on account of the greater opportunity the latter have, from the examinations and recitations, of hearing those errors.

Be this as it may, it is of course desirable to correct as far as possible these errors in oral expression. But it must be borne in mind that they are the result of acquired habit, and can be changed only by another acquired habit. This last can come only by persistent and constant correction of those errors of speech whenever and wherever they are heard in all branches of study. Mere knowledge given to the Cadet of these errors is not sufficient to eradicate them; correction of these errors during a recitation of an hour in one branch of study is not sufficient to eradicate them. Daily and constant correction everywhere is the only remedy.

A knowledge of the exact and precise meaning of the words to be used is of great value, and some instruction in the distinction of synonyms is desirable. It is thought, however, that consecutive lessons on this subject alone for a definite time as a separate division of English studies would not produce the best results. The knowledge would soon be forgotten by the introduction of new matter. Moreover, any such number of synonyms as would necessarily be given for a single lesson would require considerable time for their proper study. It is believed that the best practical results are obtained by assigning daily one word and its synonyms (learned from Smith's Synonyms Discriminated) from October 1 of the fourth-class year until the end of the entire language course—that is, June of the third-class year. The labor required daily to learn one word and its synonyms is a trifling addition to that required for the study of the lesson of that day, and by extending the study over the entire language course the habit of discrimination, resulting from studying 380 synonyms, would, it is hoped, be acquired.

The course in the history and historical elements of the English language and in its literature, though short, fulfills an object of considerable importance, namely: It not only gives information and knowledge such as those having the position of officers of the Army should possess, but it is also intended to be suggestive of different courses of reading that the Cadet could follow with interest and advantage.

THE FRENCH LANGUAGE.

Immediately after the completion of English studies the study of the French language is begun in January, fourth-class year, and extends over 242 daily recitations from that time until March 1, third-class year, being divided by examinations into the course from January to June, fourth class; September to January, third class; and January to March 1, third class, called the first, second, and third courses, respectively.

THE FIRST COURSE.

As regards pronunciation, the aim of the instruction throughout all the courses is to make the Cadet acquire, by knowledge and practice, the ability to pronounce accurately each word, to acquire a thorough knowledge of all the principles and sounds of sentence accentuation, and in practice to be fairly able to give the sentence accentuation correctly. Ease in word pronunciation and ease and correctness in sentence accentuation can be acquired only by fluency of speech. Fluency of speech in a foreign language can be acquired only by habitual use of it by one person by association with another using the language or by residence where it is spoken. In the entire course in French, consisting of 242 recitations or hours of practice, the sections number ten members, and frequently a greater number. This gives little more than twenty-four hours' practice in pronunciation for each Cadet during the entire course. The same conditions to a greater or less extent prevail in all institutions where a foreign language is necessarily taught in the class room, and it is for that reason that the power to speak with even moderate fluency a foreign language can not be and never has been acquired in a class room.

As the majority of the Cadets when they begin the study of French have no previous knowledge of the language, the first two lessons in the course are given solely to pronunciation. Lessons are assigned in the text-book on pronunciation, upon which the Cadets recite as well as receive information and example from the instructor. After the first two lessons instruction and practice in pronunciation are given by the

daily recitations and by the daily pronunciation drill described under the head of recitations.

Instruction in grammar is begun at the third lesson of the course. In the text-book used (Keetels' Analytical and Practical French Grammar), only the grammatical principle and rules, the illustrative examples thereon, and their application in the theme are required to be learned for recitation, the oral exercises and examples being used for reference only, except that in each lesson the first paragraph of the oral exercises, consisting of a few short sentences, is required to be committed to memory, not to be put upon the blackboard, but to be recited orally as an exercise in sentence accentuation.

It has been found by experience that for the study of the French verb better results are obtained by using a verb book separate and distinct from the grammar. To further aid the study of irregular verbs, a pamphlet has been prepared giving a brief explanation of the derivation of the different verb forms from the primitive tenses, accompanied by a model of the form in which the verb must always be written upon the blackboard.

In reading, no single text-book has been found that is suitable for the course here, and it has been found necessary to use several of them and to make suitable selections therefrom. As much as possible, text-books without vocabularies have been selected, as experience has proved that more French is acquired and more French retained when the learner has to search for the meaning of words and sentences in the dictionary than when he relies upon incomplete and faulty vocabularies and notes in the text-book.

THE SECOND COURSE.

As a thorough and familiar knowledge of the verbs is essential, repetition of their study is necessary. Beginning, therefore, at the first verb in the verb book, two verbs are assigned to each lesson as far as the fiftieth lesson, after which the verbs previously learned are reviewed.

Dictation exercises begin in this course, and are given every Monday. In the second course it is considered that

the Cadet has made sufficient progress in his knowledge of the language to admit of the introduction of a course in the study of French idioms. The text-book used on that subject is peculiarly suited, on account of the number of lessons into which it is divided and the arrangement of the subject-matter in each lesson, to the limitations and requirements of the course here. The book is divided into 50 lessons, each lesson containing two idioms with explanation, an exercise in French exemplifying the idioms, a short theme or composition, and a conversational exercise. Beginning with the second lesson of the programme of lessons, one lesson in the text-book on idioms is assigned to each lesson in the course, omitting the French exercise and the conversation and taking only the two idioms and the theme or composition; at the fiftieth lesson the book is completed, and the idioms are then gone over again in 50 lessons. In the review the theme or composition and the conversation are omitted, only the two idioms and the French exercise being required.

As the Cadet is to be an officer of the Army, the course in the French language should give him something of a military vocabulary. The course in reading, therefore, has a certain amount of military literature. As the Cadet at this stage of his progress has a fair acquaintance with literary and every-day French, it has been decided to introduce military literature in this course, keeping it subordinate to general literature. For this purpose one lesson per week is assigned in a French military periodical, the Revue Militaire de l'Etranger, thus giving in the second course 16 lessons in military reading. As it is deemed important to acquire as large a military vocabulary as possible, and as the style in military literature is generally quite simple and easy, the reading in the Revue Militaire de l'Etranger is continuous without any review. This periodical is taken by a six months' subscription each year, and consequently has the advantage of dealing with current military matters. Moreover, in addition to the instruction it gives in the use of the French language, the information it gives is eminently valuable to the military student and is likely to be remembered.

THE THIRD COURSE.

This course has only 40 lessons, and is the final or finishing course in French.

It is believed that the grammar course at this stage of the instruction in French should be of the nature of a general review or survey of the general and important principles of the language, combined with some instruction in the historical development of its various forms and constructions, the latter instruction being adapted to the knowledge and capacity of the Cadet. Some knowledge of this historical development is not only information proper for an educated man, but is extremely useful in enabling the student to understand, remember, and use the various forms and constructions of the language he is studying. As best answering the above requirements, Edgren's Grammar has been selected for this course.

The lessons are continuous, with no review, as the whole third course is of the character of a general review or survey of the general principles of the language.

In this course the military reading is made predominant. There is also introduced a course of reading from a French newspaper taken three months each year.

The following division is made of the different kinds of reading during the third course: Military reading from the Revue Militaire de l'Etranger during three days of the week; reading in general literature during two days of the week; reading at sight from a French newspaper for one day of the week. The lessons in reading are continuous in all kinds of reading, without any review.

The characteristics of the course in French are the variety of grammatical instruction arising from the use of many grammars—which enables the same subject to be presented in different ways and which gives more benefit than several reviews in the same book—the extent and variety of the course in reading, military reading, sight reading, the course of idioms, and the daily drill in pronunciation.

THE SPANISH LANGUAGE.

The system and methods used in the course in Spanish follow the same lines as in French, with the exception that there is no military reading and no course of idioms, time not being available therefor. On account of the small number of lessons, the same proficiency as in French can not be attained.

A good knowledge of the forms of the verb in Spanish is relatively of greater importance than in French, owing to the ordinary omission of its subject. The ease and quickness with which the verb in Spanish may be understood and learned depends almost entirely on the manner in which its forms are named, explained, and presented. For these reasons Knapp's Grammar has been selected as the text-book for verbs, and also for the reason given in the course in French that verbs are always better learned in a verb book separate and distinct from the grammar.

It has been found necessary to use three text-books to answer the requirements of the course in reading. In no other way was it possible to combine the necessary ease for beginners with the necessary variety in vocabulary and construction, and variety in examples of the literature of the language as well as its everyday speech. It is particularly the case in the Spanish course here, where it is necessary to have as much variety as possible in a short period of time. In selecting the three readers used, it has been the aim to secure thereby easy and simple selections for the beginning of the course in reading, good and representative examples of modern Spanish literature, and also reading selections that would give instruction in everyday speech and in the names of the ordinary and usual objects therein mentioned. The Eco de Madrid is used for the latter purpose.

In comparing the present course with former courses in the three languages, the comparison must be made between differences in arrangement of time and differences in matter and instruction. Formerly the three languages were in three different departments and under three different professors; now they are all under one head. Formerly and until 1893

two of the three languages were taught at the same time in the same class; now each language is taught separately, and the three languages follow one another in due succession—a great advantage over the former arrangement. In regard to the time devoted to their study, formerly French varied from 400 recitations to 272, having once 238 recitations; now it has 242 recitations. Formerly Spanish varied from 170 recitations to 60; now it has 78 recitations. English studies since their reintroduction in 1877 varied from 60 to 124 recitations; now it has 84 recitations.

In regard to matter and instruction, English at the present time differs from the former courses in the absence of instruction in grammar, in having a course in the history of the language and of its literature, in allowing only the heads of a subject to be put upon the blackboard, and in requiring synopses. French differs from former courses in having a greater variety of text-books in grammar and in reading, in having a course of military reading, in reading from a French newspaper, in the practice of sight reading and in requiring it at all examinations from every Cadet, in having dictation exercises, in the method of teaching pronunciation, in having daily pronunciation drill, and in the absence of a review in reading in the final course. Spanish differs in the greater variety of the reading, in having sight reading, requiring it of every Cadet at the examination, and in the method of teaching pronunciation.

As the object and aim of the instruction at the Military Academy give it a special character peculiarly its own, I have found it impossible to make any fair comparison between the course here and in other institutions.

The advantages of the present course are in the arrangement of studies, which permits the three languages to be studied separately without interfering with one another, and which permits them to follow one another in due order.

The defects are, first, the short time given to Spanish; second, the fact that the instructors are required to be versed in three languages and are required to teach two different languages at the same time, hearing recitations in both languages on the same day.

Language being so much a matter of acquired and afterwards involuntary habit, it is difficult to pass from the atmosphere of one immediately into the atmosphere of another for the purpose of instruction.

HISTORICAL SKETCH OF THE DEPARTMENT OF CHEMISTRY.

Instruction in chemistry was introduced at the Military Academy in October, 1820. The immediate cause and manner of this introduction are shown by the following letter and order:

MILITARY ACADEMY,
West Point, April 26, 1820.

DEAR SIR: I have just received your letter of the 20th instant and hasten to say in reply that I am highly pleased with your proposition to appoint Dr. Cutbush a post surgeon and to station him at West Point, with instructions to deliver each year a course of lectures on chemistry. The Cadets of the first and second classes (about 100) would be permitted to attend, and it is probable that few would decline the opportunity. I am of opinion that $5 from each Cadet for a single course would be a reasonable compensation.

The sum of $500, if necessary, may be spared from the appropriation of the present year to be applied to the purchase of chemical apparatus.

I am, sir, with great respect and esteem, your obedient and humble servant,

S. THAYER,
Brevet Major, Superintendent Military Academy.

Dr. JOSEPH LOVELL,
Surgeon-General United States Army.

It thus appears that the detail of Doctor Cutbush and consequent beginning of instruction in the department was immediately due to the suggestion of the Surgeon-General, Dr. Joseph Lovell. Doctor Cutbush was appointed post surgeon May 16, 1820, and his name appears on the Academic Register of June, 1820, as acting professor of chemistry. Instruction in the department was begun October 9, 1820, as shown by the following order:

U. S. MILITARY ACADEMY,
West Point, N. Y., October 8, 1820.

POST ORDERS.]

Dr. Cutbush, having completed his arrangements for a course of lectures in chemistry and mineralogy, will deliver the introductory lecture to-morrow at 12 o'clock.

The course will be attended by the Cadets of the first and second classes, which will be formed into one squad and marched to the lecture room at 12 o'clock every week day by the adjutant of the battalion or, in his absence, by the squad marcher of the first section of the first class. Seats will be assigned to the Cadets in such manner as to enable the whole to see the experiments to the best advantage, after which they are not to change seats. All officers of the post are permitted to attend the lectures. * * *

To enable Cadet Triste, acting assistant teacher of French, to attend the chemical lectures with his class, the fourth French section of the fourth class is to recite for the future in the evening, and will assemble for that purpose at the signal to return to quarters after supper.

By order: GEO. BLANEY,
Lieutenant and Post Adjutant.

These lectures to both classes at the same hour did not long continue, for the regulations of the Academy, adopted in March, 1821, provided separate hours.

Both the first and second classes were examined in chemistry at the January and June examinations of 1821, and although there is no record of an examination in mineralogy, the first class was given a standing in this subject after the June examination, 1821, and it is inferred that it was also taught to the first class during the academic year 1820 and 1821. The regulations of 1821 provided that chemistry and mineralogy should be taught in a course of lectures and experiments to the first and second classes at the rate of three lectures per week to each class, accompanied with suitable interrogatories. These lectures from the beginning must have partaken largely of the nature of recitations, for the classes were divided into sections. One hour (12 to 1) every other day was devoted to lecture and interrogatory and the same hour on the other days to the study of the subject.

The instruction to the first class was at first given both in mineralogy and applied chemistry; to the second class in chemistry only. Geology is first mentioned as one of the subjects upon which the first class was examined in June, 1823. An important departure from the provisions of the regulations was made in December, 1822, when the hour from 11 to 12 was allowed for instruction of the first class in mineralogy, and in the spring of 1823 the same hour was allowed for the recitations of the second class in chemistry.

The regulations of 1825 (approved March 1 of that year) contained substantially the same provisions as those of 1821 in regard to the instruction to be given in the department.

(a) INSTRUCTION OF THE FIRST CLASS.

The history of the instruction to the first class in this department may be summarized as follows:

From 1820 to 1830, when instruction was given in both mineralogy and applied chemistry, an hour each day in the week was allowed for the section-room exercises during the entire year, but instruction was not always continuously given. From 1830 to 1853 the regulations of the Academy prescribe three section-room exercises per week in mineralogy and geology, but this number was actually held for only about one-half the academic year upon alternate week days, except Saturdays. The actual number of recitations or lectures permitted in mineralogy and geology since 1830 has been very nearly the same up to the present. There was a slight increase in the number at the time of the changes in 1872 and 1879, but the number has varied between 45 and 55. Prior to 1830 a greater number of days was given to the instruction of the first class in this department, but the class then devoted time to applied chemistry as well as to mineralogy and geology. The exact time devoted by this department to the instruction of the first class between 1820 and 1830 can not be determined; the regulation schedule was interfered with in many ways.

From June, 1834, to June, 1838, the study of mineralogy appears to have been suspended for lack of a suitable textbook, though that of geology was kept up. In the autumn of 1838 the study of mineralogy was resumed, and with geology has been annually taught since. Although but little time was devoted to these subjects during the second term of the academic year between 1841 and 1872 (about three weeks in May), the class was examined in the branches both in January and June. Since 1872 there has been only one examination (in June), all the study of the subjects pertaining to the second term. The previous study given the subject in May

(between 1841 and 1872) was merely a review for the June examination.

The text-books used in mineralogy and geology since 1820 are as follows:

Cleveland's Treatise on Mineralogy and Geology, 1820 to 1833 or 1834.

Bakewell's Geology, 1833 or 1834 to June, 1841.

Lyell's Geology, 1841 and 1842.

Dana's Mineralogy (manual), first to fifth editions, September, 1839, to January, 1894.

Elementary Geology, E. Hitchcock, 1842 to June, 1872.

Text-book of Geology, Dana, 1872 to 1882.

Elements of Geology, Le Conte, 1882 to 1896.

Elementary Lessons in Mineralogy, Tillman, 1894 to 1900.

A Description of the Common Rocks (brochure), Tillman, used with Le Conte's Geology until 1900. In 1901 Important Minerals and Rocks, by Tillman, replaced the last two books of the above list.

(b) INSTRUCTION OF THE SECOND CLASS.

The study of chemistry in the second class was introduced October 9, 1820. The schedule for this branch of study in this class assumed definite shape very soon after introduction, and with only a few temporary interruptions has continued almost unchanged to the present time. Instruction in general chemistry has from the above date been given to the second class. For a year or two after the introduction of the subject one hour (12 to 1) a day was devoted to this subject, but in 1823 the hour from 11 to 12 was also given. From 1823 to June, 1880, with the exception of short intervals between 1823 and 1830, recitations in chemistry, or lectures on that subject, have been held on alternate week days throughout the year—half the class reciting one day and the other half the next—each section attending one hour, the first hour being from 11 to 12 and the second from 12 to 1 o'clock. In the reorganization of the course for a five years' term (1854 to 1861) this arrangement was not disturbed. After June, 1879, when instruction in mineralogy and geology was transferred to the

second class year, recitations in chemistry were made daily between November 1 and January 1, and from the close of the January examination to the end of the course in chemistry. The recitations were on alternate days during September and October. When the course in chemistry was completed, after the January examination, the other subjects, transferred to this year from the first class year, were continued until June, recitations being daily, except during the month of April. In May, 1882, the schedule which appears in the regulations of 1883 was established and is still in operation, except that the additional subject of physiology and hygiene was introduced for the first time in 1887, a law to that effect having been passed in 1886. From 1823 to 1880, approximately, the same allowance of time was given to the chemical recitations and instruction of the second class. Since 1880 there has been a slight increase, due to the changes resulting from the transfer of mineralogy and geology to the second class year. In this connection it should be remembered that the term chemistry included electricity from 1858 to 1880.

The text-books used in the chemical studies of the department were the following: Henry's Chemistry, from 1820 to June, 1829; Turner's Chemistry, from 1829 to June, 1840; Webster's Chemistry, from 1840 to June, 1843; Kane's Chemistry, from 1843 to June, 1858. During the years 1859 and 1860 both Fowne's and Regnault's chemistries were used. Fowne's Chemistry from February, 1858, to June, 1884 (seventh to thirteenth editions); Bloxam's Chemistry from June, 1884, to 1896 (fifth to eighth editions).

Principles of Chemical Philosophy or Essential Principles of Chemistry (Tillman) was used in conjunction with Bloxam. In 1897 Tillman's Descriptive General Chemistry replaced Bloxam. The subject of electricity and magnetism was first taught in this department during the year ending June, 1858. Miller's Physics of Chemistry was the text-book on this subject from that time until January, 1883. In January, 1883, Miller was replaced by S. P. Thompson's Elementary Lessons in Electricity and Magnetism. This book is still used,

having passed through several editions, the latest being that of 1895.

Dr. James Cutbush, assistant surgeon, U. S. Army, was the first head of the department and acting professor of chemistry at the Academy. He served from the creation of the department until his death, December 10, 1823. Assistant Surgeon James G. Percival succeeded Doctor Cutbush, and was acting professor of chemistry, etc., from March 4 to July 6, 1824. Assistant Surgeon John Torrey was the acting professor from August 25, 1824, to June 15, 1827. Doctor Torrey afterwards filled many distinguished positions, among which may be mentioned that of professor of chemistry and botany in the College of Physicians and Surgeons in New York City; professor of chemistry at Princeton College, New Jersey; professor of chemistry, mineralogy, and botany at the University of the City of New York.

Lieut. W. F. Hopkins, Fourth Artillery, was acting professor of chemistry, etc., from June 15, 1827, to August 31, 1835. Among the positions subsequently filled by Professor Hopkins may be mentioned that of professor of chemistry and natural philosophy, William and Mary College, 1849–50; professor of natural and experimental philosophy, United States Naval Academy, 1850 to 1859. Lieut. J. W. Bailey, First Artillery, was the acting professor of chemistry, etc., from August 31, 1835, to July 8, 1838. At this latter date he was appointed professor of chemistry, mineralogy, and geology, and occupied the position until his death, February 26, 1857. Capt. H. L. Kendrick, Second Artillery, was appointed professor of chemistry, etc., March 3, 1857, and served until December 13, 1880. Professor Kendrick, prior to his appointment as professor, had served from September, 1835, to January, 1847, as assistant in the department to Professor Bailey. Lieut. S. E. Tillman, Corps of Engineers, was appointed to the professorship to succeed Professor Kendrick January 1, 1881. At the date of his appointment Lieutenant Tillman had served for four and a half years as assistant in the department to Professor Kendrick and one year as assistant in the department of philosophy.

The foregoing account shows the general development of the department. There has been but little variation in the time devoted to the subjects of the department. The list of text-books given shows that constant effort was made to keep abreast with the advances in the branches taught.

The most important single and distinct change in the department since 1830 was made when all the instruction in the department was transferred to the second-class year and the whole placed in the morning hour, from 11 to 1, for recitations. This change first took effect with the second class 1879 and 1880. It allowed 25 more lesson days to the department, gave the morning hour for all recitations, and relieved the department from the necessity of conducting simultaneously instruction in two branches, occupying both morning and afternoon, with the same set of instructors, an arrangement which prevented sufficient attention to either branch.

THE PRESENT COURSE.

Since the changes as to time, made in 1879 and 1882, already referred to, the department has had 186 recitation days; of this number 81 come before January and 105 after.

The course before January embraces the subjects of heat and chemistry; after January, physiology and hygiene, electricity, mineralogy and geology. The text-books used before January are, Elementary Lessons in Heat, Tillman; Descriptive General Chemistry, Tillman.

The text-books used after January are Anatomy, Physiology, and Hygiene, Tracey; Elementary Lessons in Electricity and Magnetism, S. P. Thompson; Elements of Geology, Joseph Le Conte; Important Minerals and Rocks, Tillman.

The number of recitations before the midwinter examination is 68; after this examination, 92. Lectures with experimental illustrations accompany the recitations throughout the course and are so selected and timed as to elucidate many of the difficult points of the course and to benefit the students as much as possible in acquiring a knowledge of the principles of the sciences taught. There are from 25 to 28 lectures during the year's course.

The lectures are delivered to the entire class assembled in the lecture room of the department. The arrangement of lectures is such that they, in general, are delivered on the advance course and pertain to the discussion and illustration of principles and subjects already studied by the Cadets. Having the lecture precede the study of the subject was tried and found less satisfactory than the method indicated. It frequently happens that the knowledge of the class is such that subjects in advance of the lesson may with advantage be dealt with; it is then done, but as a rule the lectures relate to subjects already studied. All but a few of the lectures are delivered during the advance lessons of the class and follow each other in such order that the illustrations and demonstrations in each may embrace, as nearly as possible, all the matter studied by the class since the preceding lecture. There were 27 lectures during the last academic year, thus giving one lecture for each three advance lessons of the course, there being 81 such lessons. The intervals between lectures are not, however, uniform, so that precisely three recitations do not always intervene between them, even when no review is made.

These frequent assemblies of the class give ready opportunity to enforce thought in the directions that the section-room consideration show to be most desirable. They are made the occasion of calling the attention of any members of the class to subjects, principles, etc., that need more study. While the main object of the lectures is to illustrate and elucidate the principles and facts of the text, they are taken advantage of to convey much useful information—scientific, historical, and othewise—in the effort to show the breadth of the sciences taught, their relations to other branches of knowledge, and to give to the study a real meaning and create a living interest in the Cadets.

Before the midwinter examination the members of the class who have made sufficient progress are given a course of "chemical manipulation" in the laboratory during the month of November. This laboratory experience was first undertaken in November, 1900. Up to the present time about three-fourths of each class have been given the laboratory

course. After the midwinter examination the entire class is given practical work in the electrical laboratory during the month of April.

The full course comprises—

CHEMISTRY, MINERALOGY, AND GEOLOGY.

Chemistry: Chemical philosophy; inorganic chemistry—chemistry of the nonmetallic elements and their compounds, chemistry of the metallic elements and their compounds, useful applications of the principles of inorganic chemistry; organic chemistry—chemistry of the carbon compounds, animal chemistry, chemistry of vegetation, useful applications of the principles of organic chemistry; physiology, hygiene, action of alcohol and narcotics on the human system.

Chemical physics: Heat—thermometry, dilation of bodies, calorimetry, production and condensation of vapors, latent heat, hygrometry, conduction, radiation, relation between heat and light, thermo-dynamics, terrestrial temperatures, aerial meteors, aqueous meteors; electricity—frictional electricity, sources of electricity, magnetism, current electricity, electrostatics, electro-magnetics, electrical measurements, heat, light, and work from electric currents, thermo-electricity, electro-optics, magneto-electricity, electro-chemistry, construction and use of apparatus illustrating and involving the principles of the foregoing subjects, useful applications of electricity.

Mineralogy: Crystallography, physical and chemical properties of minerals, practical determination and use of minerals, descriptive mineralogy and petrography.

Geology: Dynamical, structural, and historical, with special reference to the United States.

TIME FOR STUDY.

The Academic Regulations up to 1853 prescribed that "the daily allowance of time for the class studies shall not be less than nine hours, nor more than ten." The present regulations of the Academy make about the same amount of time available for class studies, as will be seen from the following considerations: The working day of the Cadets begins at reveille

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(5.45 a. m.) and ends at taps (10 p. m.), embracing $16\frac{1}{4}$ hours. One hour of this time may be considered as unavailable for purely personal reasons, leaving $15\frac{1}{4}$ hours. Of this time each day, except Saturdays and Sundays, the class is in the section room $3\frac{1}{2}$ hours, which must be classed as study time; 2 hours of the day are devoted to meals, which leaves $9\frac{3}{4}$ hours of the day. Assuming 2 hours for military exercises and $1\frac{1}{2}$ hours for other recreation, exercise, or rest, there is left $6\frac{1}{4}$ hours for application to the studies of the second class outside the section room.

ORGANIZATION OF THE DEPARTMENT AND DUTIES OF THE PERSONNEL.

The personnel of the department consists of the professor and the requisite number of instructors, a civilian employee, and an enlisted attendant.

The professor is, by the academic regulations, made responsible for the mode of conveying instruction in his department. He prepares and delivers the lectures that pertain to the course, and with the aid of the instructors and employee he arranges for the illustrations and experiments that accompany them. He arranges and prescribes all the lessons during each term, this tedious duty being often necessary owing to a change of text-books or the date of lectures. He constantly supervises and assists in the instruction by frequent visits to the section rooms, and is always ready to replace any instructor who may be sick or detailed to other duty. He makes constant effort to have the aims and objects of the department thoroughly understood by the instructors, has frequent interviews with them as the course progresses to this end; invites suggestions and discussion from them, individually and collectively, toward the accomplishment of better results. He sees that the same general methods are followed by all the instructors. To this end it is found very beneficial to have a new instructor present at two or more recitations before he is required to conduct them. The professor, aided by instructors, endeavors to keep note of the most important publications pertaining to the department, and

secures them by purchase as the funds warrant. With the same assistance he watches some of the best technical and scientific journals and attempts to provide the department with the best, new, and approved apparatus that the funds of the department will purchase, and which can be made useful with available facilities.

In nearly all the duties enumerated as pertaining to the head of the department much assistance is derived from the instructors, and it is the settled purpose of the head of the department to give the instructors every opportunity and encouragement to aid in its development.

Until 1902 each instructor had charge of two sections, one reciting from 11 to 12, the other from 12 to 1. In 1902 each instructor was given three sections, one of which recited from 10 to 11. This arrangement became necessary because of the large size of the class.

The instructors are required to be present in the department by 9.30 a. m., and as a rule are there much before that time. The senior instructor, or assistant professor, is required to make out a programme for each day's recitation, selecting the matter to be given out at the board, that for questions, and the problems to be solved. All the other instructors use this programme, so that entire uniformity is observed as to the matter recited upon each day, and the experience of the senior instructor is made use of to select it. This programme is the same for all the sections in the same half of the class, but a difference is often made between the two halves. Each instructor is required to have everything in perfect readiness in his room when the section enters. The problems given out the previous day must be corrected and ready for return to the section. He must see that any chemicals, specimens, or apparatus required in the room for the day are upon the exhibit table.

Any drawings upon the board or other work that he may need for the explanation of the lesson of the day, or of the previous day, must be in readiness. The assistant professor is charged with the accounts of purchases, expenditures, etc., and the inventorying of the new property. Included under the

above duties are many details, too numerous to mention in full.

The civilian employee has much occupation in the preparation for lectures, getting in readiness the necessary apparatus, preparing the agents, and in removing the material afterwards. He is at the service of any of the instructors in assisting to supply the exhibit of specimens, apparatus, etc., required in each section room, and in removing such exhibit after use, and in replacing it in the proper storage case.

During the instruction in mineralogy and geology he keeps all the working stands and the reagent stands of the different section rooms properly supplied with chemicals, apparatus, and material, removing that used and replacing it by fresh—a very onerous task. With the enlisted attendant he keeps the various rooms of the department well policed. They both also have important duties in the power and battery rooms in connection with the electrical part of the course.

ORAL RECITATIONS.

When the section enters and the marcher has made his report the instructor inquires if there are any questions the section wish to ask about the lesson. If there be any, as is very frequently the case, they are answered as clearly as possible. When the section has nine men the order of recitation is as follows: After all questions are answered, five of the members are assigned subjects for discussion or description at the board.

The enunciations of the subjects at the board are printed and bound in pamphlet form. The instructor directs Mr. A, B, C, D, and E to discuss at the board subjects 20, 21, 23, 24, and 25, taking them in the order named, the numbers of the subjects being already written upon the boards. Each Cadet called writes his name upon the board containing the number of his subject. He uses one of the enunciation pamphlets in preparing for his recitation.

The enunciation calls the Cadets' attention to the important points of the subject, but does not give information upon

them. He is permitted to write out under each term of the enunciation such knowledge as he has acquired in regard thereto and is then ready for recitation. While being permitted to write upon the board the substance of his recitation, each Cadet is encouraged to outline the matter diagrammatically and only so fully as is necessary to bring readily to mind what he wishes to say, and then to bring out the details orally instead of by writing out the whole upon the board. The Cadets are supplied with the enunciation pamphlets and have the use of them in their study at their rooms. This greatly assists most Cadets, serving to call attention to the principal and essential points of the subjects studied. When the instructor has sent the proper number of Cadets to the board he assigns to two others sets of problems involving principles already studied. These two proceed at once to the solution of their problems.

The simplicity of the problems, of course, depends upon the progress of the course, becoming more complex as principles are acquired in greater number.

The remaining two members of the section not yet mentioned are called up and take their position in the center of the room and are questioned by the instructor upon parts of the lesson not given out at the board, on the more important parts of the lesson of the previous day, or upon principles pertaining to the subject which should be known. Experience has developed an advantage in this department in having the Cadets who are to be questioned take the floor together instead of in succession, as was formerly the custom.

After these two Cadets are questioned from fifteen to twenty minutes they are given a set of problems to solve—this set of problems involving less work than that given to the two members who were not questioned. Sometimes more than two are questioned, and then all receive problems afterwards. The exact programme for each day is arranged by the senior instructor and is followed in all the sections.

When the instructor has finished with the Cadets on questions, some member at the board is generally ready, or nearly ready, to recite. This member is then called

upon, and proceeds to make his recitation. He makes such use of his board work as is necessary to enable him to set forth all the information he possesses upon the points enumerated in his enunciation. During the discussion of each heading the instructor makes only such interruptions as are essential to correct understanding and statement. Before leaving any particular heading the instructor brings out by questions all the important points that may have been omitted. At the close of the recitations the instructor endeavors to call attention to all points in any part of the subject which seem not to have been properly appreciated. It is also a prime effort of the department to show the relation between new principles and facts brought out and others already studied, and to point to some application which these principles find in the arts and industries. This is done by a simple statement of the instructor or by a query to the Cadet as to whether he had ever observed such or such applications.

The above-described method for section-room exercises is applicable during the study of heat, chemistry, and electricity. During the study of mineralogy and geology the method is materially different. A smaller number of subjects is given out at the board; no problems are given out, but instead several members of the section are given a number of mineralogical or geological specimens to determine by practical tests, suitable stands and all the necessary apparatus being in the room for the purpose. In mineralogy and geology the Cadets placed upon questions are very frequently asked about the objects themselves. Thus, Cadets called up for questions are placed in front of a lot of mineralogical or geological specimens, and each in turn is directed to pick up one of them, and is then asked all of its visible and easily determined characteristics, as color, structure, texture, luster, hardness, tenacity, heaviness, etc.

After being questioned these gentlemen are given selected specimens to determine by the blowpipe or chemical tests. The Cadets who have minerals or other specimens to determine, after due time, bring them up in front of the instructor's desk and give the results of their determinations, being

required at the same time to state what tests were applied in the determination. The recitations are so short that in these subjects it is often impossible to hear all recite upon their determined specimens. In such cases those not reciting leave their names in their trays with their labeled specimens, and any serious mistakes of determination are referred to the next day.

The time devoted to the determination of minerals, rocks, and fossils is largely increased by allowing the Cadets to use in the section room certain "tables for the determination of minerals." By this aid they can have practice upon minerals not in the lesson of the day. In the same way, by the use of their text-books in the section room, we are enabled to give out rocks and fossils, though they have not been mentioned in the lessons of several previous days. In other words, the practical work on rocks and minerals, etc is not limited to the time that the lithology and mineralogy are studied, but continued through all the course of geology as well.

Thus we have developed a thoroughly practical course of very reasonable length. In each room a full set of ordinary exhibition specimens of minerals, rocks, and fossils is placed, so that the Cadets have the benefit of a small cabinet collection in their study of the subject. This exhibit collection is allowed to be used only under such restrictions as tend to cultivate the powers of observation and partially supply the defects of insufficient time. It is of great assistance in acquiring a knowledge of the subjects.

In addition to the cabinet tables already referred to in the mineralogical section rooms, another table is kept in each room at all times. Upon it are exhibited the special chemical specimens, apparatus, or drawings referred to almost daily in the text. Any members of the section not otherwise engaged are permitted to examine and familiarize themselves with the objects thus exposed. The members around this table are permitted to converse in regard to the objects under consideration, but it is contrary to order to discuss other matters or to seek information upon subjects not yet recited upon.

WRITTEN RECITATIONS.

A good many written recitations are held, usually as the subjects are being reviewed. In these cases the entire class or half the class attends at the same hour in one of the larger rooms of the Academy. All write answers to a series of questions pertaining to the subjects of the lesson for that day or upon principles which are always required. This written recitation is generally adopted when it is desired to include a number of important facts or principles. The attention of each Cadet is then called to the desired points and more time is given for them to express their knowledge of them. The written recitation serves to pick out the Cadets who are weakest in certain directions. It is also occasionally resorted to as a means of introducing a set of problems involving the application of principles that it is desired to impress promptly upon all. Only a small number of such recitations is found desirable in this department.

SEMIANNUAL EXAMINATIONS.

The annual and semiannual examinations in this department have, with few exceptions, been oral. The relations between the different subjects pertaining to each term and the present distribution of time to each subject renders intermediate examinations impracticable and undesirable. When a Cadet's work during the term indicates deficiency, in the opinion of the department, he is subjected to a written test at the end of the term. A Cadet whose mark during the term indicates doubtful proficiency is given a sufficiently extended oral examination to dispose of such doubt. If in the oral test he still fails to prove his proficiency to the satisfaction of every member of the Academic Board, he is then given a more extended written test. All those Cadets whose marks during the term clearly indicate proficiency are, at examination, given some subject in the course, usually chosen by lot. These subjects are taken from all parts of the course, and there is little or no repetition among them. A proficient knowledge of such subject indicates a proficient knowledge of the course, and it is so taken. A failure upon one subject

is followed by a test upon another selected in the same way. A second failure makes it necessary for the Cadet to prove his proficiency upon a more extended test.

The decision as to the probable proficiency of Cadets at the end of the term and before examination is based upon the entire work during the term. The considerations involved are numerous and varied and differ in different cases. The record made upon general review is given the greatest weight. Generally, when a Cadet has made an average of a little over two-thirds of the maximum in all parts of the course, his work is taken by the department to indicate proficiency. An average of a little less than two-thirds of the maximum over all parts of the course indicates doubtful proficiency, and the doubt is decided by the results of the examination. An average considerably less than two-thirds—say 1.8 out of 3—in all parts of the course is considered to indicate deficiency, and an extended written examination is considered essential to determine whether such Cadet has been able to make up the deficiency between the time recitations ceased and the examinations are held.

GENERAL CONCLUSIONS.

The method of instruction is, in general, the same that has long prevailed at the institution. The transfer of all the instruction of the department to the second-class year, and of all recitations to the morning hour (made in 1880), allows each instructor to devote his entire time at any period to one subject, to the manifest and greatest benefit of the instruction. It permitted a perfection of arrangement in all the details of the section-room work not before possible, adding greatly to the efficiency of the instruction.

In present instruction greater importance than formerly is attached to the practical bearing of all that is taught. To this end, in the subjects of heat, chemistry, and electricity, the solutions of problems involving the principles taught has become a marked feature of the recitation work. During the day's recitation of three hours in the above subjects

each instructor gives out from twelve to thirty problems. The Cadets make an effort to solve them, and the instructor examines, corrects, and returns them to the section at the next recitation. In mineralogy and geology trays of minerals, rocks, etc., for determination replace the problems, and each instructor must daily provide from eight to ten sets of specimens, each containing from six to ten varieties of minerals, rocks, or fossils. The method now pursued has greatly increased and concentrated the labors of the instructors, with the greatest advantage to the instruction. While it is certain that the course embraces more now than formerly, and while it is thought that as good results are obtained over the broader course, it is believed that no greater effort is required from Cadets. This belief is based upon observation and the conversation of Cadets, as well as upon the reasons for such results apparent in the facts above set forth.

The marked advantages of this department in accomplishing results may be stated as follows:

1. The division of the class into small sections, by which each instructor is enabled to give greater individual attention to each Cadet and closer personal supervision of all the work of his section.

2. The assistance of competent, willing, and interested instructors, by which the department is enabled to create and develop the interest of the Cadets in the subjects taught. This factor, too, keeps the department in healthy activity and multiplies the chance of improvement in the course of study and methods of instruction.

3. The lever of effectual compulsion, which pertains to all the departments of the institution.

H.

HISTORICAL SKETCH OF THE DEPARTMENT OF LAW AND HISTORY.

The following sketch of the department of law and history was prepared in 1896 by the then head of the department, Prof. G. B. Davis. Professor Davis was appointed Judge Advocate-General of the Army, and was succeeded as professor of law, etc., on July 31, 1901, by Col. Edgar D. Dudley, of the Judge-Advocate's Department of the Army. No important changes are to be recorded between 1896 and June 30th, 1902.

THE DEPARTMENT OF LAW.

The Regulations of the Military Academy, issued under the authority of the Secretary of War on July 10, 1816, prescribed that "a course of ethics shall include natural and political law." It is difficult at this distance of time to understand what was meant by the terms thus used by the Secretary of War. Natural law, a term but little used in England and the United States, relates to a subject which has always been extensively studied on the continent of Europe, especially in those states whose jurisprudence is derived from or based upon the civil law. Natural law, the jus naturale of the Roman law, may be defined[a] as "the rule and dictate of right reason, showing the moral deformity or moral necessity there is in any act according to its suitableness or unsuitableness to a reasonable nature," and embraces those fundamental rules of conduct in human affairs which have received general assent and recognition in all civilized states. It also includes matter which in England and the United States would be taught under the name of ethics or moral science. As I can find no record of the adoption or introduction of a text-book on this subject I am constrained to believe that no formal instruction was given at any time in natural law.

The term political law, as used in 1816, is also somewhat vague. The great text-book on that subject, prepared by Sir

[a] Taylor's Civil Law.

William Blackstone, and published in 1758, would have been too voluminous for use in a course of study so elementary in all respects as was that which appeared in the regulations of 1816. I am disposed to believe that the regulation above cited is to be regarded rather as an expression of the executive will, as to the general importance or necessity of the study of law in some form at the Academy, than as a direction that the two subjects named should form a part of the official course of study.[a]

Section 2 of the act of April 14, 1818 (3 Stat. L., 426), provided that there should be "one chaplain stationed at the Military Academy at West Point, who shall be professor of geography, history, and ethics, with the pay and emoluments allowed the professor of mathematics." Under the authority conferred by this statute the Rev. Dr. Thomas Picton was appointed chaplain and professor of ethics on July 23, 1818, and continued in office until January 21, 1825, when he left the service by the resignation of his commission. The first text-book of law studied at the Military Academy seems to have been Vattel's Law of Nations, then as now the most widely accepted standard of authority on the subject of which it treats.

The records show that Wheaton's National Law was introduced at some time prior to 1839, when it was replaced by Kent's Commentaries. I can hardly believe that the title cited is that of the text-book actually adopted and studied. The first edition of Wheaton's International Law was issued in 1836 and was, in all probability, adopted as a text-book immediately upon its publication. I have been unable, after considerable inquiry, to learn that Mr. Wheaton ever wrote on the subject of national, as distinguished from international, law. He was for many years the reporter of the decisions of the United States Supreme Court, but never wrote upon the subject of national or constitutional law. His work gave place in 1839 to Kent's Commentaries, a single volume covering the subjects of both constitutional and international law,

[a The text-book used was Burlamaqui's "The principles of natural and politic law in two volumes," translated into English by Mr. Nugent. The fifth edition was printed at Cambridge, Mass., in 1807.—EDITOR.]

which continued to be used as a text-book in those subjects for more than thirty years.

Professor Picton was succeeded in the chair of geography, history, and ethics by the Rev. Charles P. McIlvaine, who resigned on December 31, 1827, and was in turn succeeded by Prof. Thomas Warner, who was appointed on January 1, 1828, and continued in office until September 1, 1838, when he vacated the office by resignation, and was succeeded by Prof. Jasper Adams, during whose incumbency of the office Chancellor Kent's work was adopted as the principal text-book in the course of study in law.

The register of the Academy for 1841 contains the name of the Rev. M. P. Parks as professor of geography, history, and ethics, and the register for 1842 contains the first outline of the course of study in law, together with a list of the text-books then in use at the Military Academy. In this list appears Kent's Commentaries, including the constitutional and international law, Vattel and Wheaton having both been superseded. The Rev. William T. Sprole became chaplain and professor of geography, history, and ethics on March 2, 1847, and was "superseded" in that office on August 16, 1856, by the Rev. John W. French.

During the incumbency of Professor French, which extended over a period of about fifteen years, an extensive course of study was built up, including all of the subjects mentioned in the act of April 14, 1818. In the academic year 1858–59 instruction in the subject of military law was first given, the text-book adopted for that purpose being De Hart's Courts-Martial. During the ensuing year the study of the rules and Articles of War was for the first time made a part of the course of study in law. The register for the year 1862 shows Professor French's pamphlet on Law and Military Law to have been made a part of the course of study. In the academic year 1866–67 Halleck's International Law was introduced, replacing Kent, and Benét's Military Law replacing De Hart. In the academic year beginning September 1, 1867, all instruction in the subjects of geography, history, and ethics was discontinued, and the course of study pursued

under the direction of the chaplain included only the subjects of international, constitutional, and military law.

The vacancy in the chair of geography, history, and ethics, caused by the death of Professor French, on July 8, 1871, was filled on the 28th of July following by the appointment of the Rev. Dr. John Forsyth, who continued to give instruction in law until August 28, 1874, when under the authority conferred by the act of June 6, 1874, which provided that "the Secretary of War may assign one of the judge-advocates of the Army to be professor of law," Maj. Asa Bird Gardiner was detailed for duty in the department of law, and the several heads of department have since been assigned by the Secretary of War under the authority conferred by this statute, although under the acts of June 1, 1880, June 27, 1881, and June 30, 1882, any officer of the Army may be assigned to that duty.

Major Gardiner initiated numerous changes in the course of study. In the year 1875–76, Woolsey's International Law replaced the text-book of General Halleck on that subject, and the new work of Professor Pomeroy on Constitutional Law replaced Kent's Commentaries. Professor French's pamphlet on Law and Military Law, was retained and Benét's Military Law discontinued as a text-book, the latter being replaced by Gardiner's Practical Forms for use in Courts-Martial and Head Notes on the Law of Evidence in Courts-Martial, and the systematic study of General Orders, No. 100, of 1863, containing Dr. Francis Lieber's admirable presentation of the rules of modern war, was introduced as a supplement to the course of international law. Major Gardiner was relieved on August 28, 1878, and Maj. G. Norman Lieber, of the Judge-Advocate-General's department, now the Judge-Advocate-General of the Army, was assigned to duty as professor of law.

During Major Lieber's incumbency of the office, Ives's Treatise on Military Law was introduced and Pomeroy's Constitutional Law was replaced by Judge Cooley's text-book on the same subject, which is still in use. Major Lieber was succeeded by Lieut. Col. Herbert P. Curtis, of the Judge-Advocate-General's department, who was in turn succeeded

by Lieut. Col. William Winthrop, during whose incumbency Winthrop's Military Law was introduced during the academic year 1886–87. Colonel Winthrop was succeeded on August 28, 1890, by Maj. (now Lieut. Col.) John W. Clous, of the Judge-Advocate-General's department. Beginning with the academic year 1891–92, Davis's Outlines of International Law was introduced, replacing Woolsey's Elements of International Law. Colonel Clous was relieved on August 20, 1895, by Lieut. Col. George B. Davis, Deputy Judge-Advocate-General, the present incumbent.

The present course of study in law covers the subjects of elementary law, constitutional law, international law, and military law; the text-books being Davis's Introduction to the Study of the Constitutional and Military Law of the United States, Cooley's Constitutional Law, Davis's International Law, and Winthrop's Military Law. The courses of study in elementary and constitutional law are completed during the first half, and those in international and military law during the last half of the academic year. In view of the character of the subjects studied, each text-book is passed through but once in advance and once in review, the general review being omitted. The course in elementary law embraces 12 lessons in advance and 6 in review, and that in constitutional law embraces 20 in advance and 10 in review. During the half year it is proposed to give at intervals a course of 6 lectures upon the following subjects: The common law, the civil law, the constitutional law of the United States, crimes and criminal procedure, and the government of the United States.

During the second half year the courses of study in international and military law will be passed over, the former in 20 advance and 10 review lessons; the latter in 18 lessons in advance and 9 in review. During this period two lectures will be given, one upon the history of the Articles of War, the other on the subject of military discipline and administration. Under the arrangement of studies which is to go into effect at the beginning of the next academic year (1896–97), the first class will attend recitations in law three times per week throughout the entire year, alternating daily with history, in which subject two hours of recitation per

week are required. Instruction in both of these subjects is carried on upon the basis of one and one-half hours of study in quarters to each hour of recitation in the section room.

The mechanism of the recitation has already been fully and accurately described by the professor of mathematics in the article treating of the course of study in that department. It only remains, therefore, to describe those matters in which the course of study in law differs from that pursued in the department of mathematics. Cadets are encouraged to ask questions and to bring to the attention of the instructor any points in the lesson of the day which may have seemed to them either difficult or obscure. These are explained to them before the recitation begins, which is carried on in the same manner as a recitation in mathematics. The practical work in the section room consists in the study of cases bearing upon the lesson of the day, the enactment, modification, and repeal of statutes, the examples being taken from the Revised Statutes and Statutes at Large of the United States, and in the application of the rules of interpretation to the statutes relating to the military establishment of the Federal Government. Cases from the reports of the United States courts are also given out for special study when important points are involved in respect to the military or constitutional law of the United States. The course of study is precisely the same for all the sections.

As at present organized, the department consists of a professor, an assistant professor, and three acting assistant professors, all detailed from the Army. For purposes of recitation the first class is divided into eight sections of nine Cadets each, who attend recitations daily from 2 p. m. to 4 p. m. on Monday, Wednesday, and Friday of each week during the entire academic year. The same instructors hear recitations in history on Tuesday and Thursday of each week during the same period. The recitations are carried on, as has already been stated in the same manner as recitations in mathematics. The same or similar section rooms and furniture are used, and the recitations are marked on the same scale and in accordance with the same system. In each section two or more of the daily

recitations are required to be in writing, the subjects being chosen from the lesson for the day or taken in the form of general questions from the lesson of the day before. The recitations in writing are marked on the same scale and have the same value in all respects as the oral recitations. As there are four sections reciting at the same hour, it is impossible for the head of the department to visit each section more frequently than twice per week, the lower sections being visited more frequently than those at the head of the class where any variation is made.

The weekly class reports are made in the same form and convey the same information as those submitted by the department of mathematics. Transfers are made, as a rule, whenever a Cadet has an aggregate mark greater by two units than the lowest mark in the section immediately above or less by the same amount than the highest mark in the section immediately below. While this rule is general, exception is made when from sickness, absence, or other unavoidable cause injustice would be done by its strict enforcement. The marks are posted on Saturday of each week in the frames provided for that purpose in the north hall of the Academy Building.

As two courses of study are carried on independently, the examinations are arranged in such a way as to allow one of the classes to be examined orally and the other in writing at each semiannual examination. In this way each class as it passes through the courses of study in law and history will be examined orally and in writing in each subject of study. The weights to be attached to the term marks in advance and review and the special weight to be given to each form of examination are determined by the Rules for the Guidance of the Academic Board and its Committees.

The present arrangement of the course of study in law is based upon the experience of many years, and seems to be fairly well adapted to the peculiar needs of the institution and at the same time to carry into effect the will of Congress in its several enactments directing that the study of law shall be pursued at the Military Academy.

(2) THE DEPARTMENT OF HISTORY.

The offices of chaplain and professor of geography, history, and ethics, created by the act of April 14, 1818, after a joint continuance of something more than seventy-eight years, were dissociated by the act of February 18, 1896, which directed the discontinuance of the latter and vested the duties of the former in an officer to be appointed by the President for a term of four years. The study of history was transferred by Executive order to the department of law, thus bringing together after a separation of nearly twenty-two years the closely related studies of history and law.

The present course of study in history went into effect on September 1, 1883, and was comprised in a course of 50 lessons, begun and completed during the first half of the academic year. The reintroduction of history into the official course of study was due to patient and persistent endeavors of the late Rev. Dr. William M. Postlethwaite, who succeeded Rev. Dr. John Forsyth in the chaplaincy and professorship on December 21, 1881. For a little more than twelve years the course of instruction in history was carried on under the able guidance of Professor Postlethwaite, whose labors were interrupted by his untimely death in January, 1896.

For purposes of instruction in history the first class was divided into sections in September of each year, the arrangement of the class being based upon the general merit roll of the preceding year. Each half class attended recitations three times per week from September to December, and the course in history closed with the semiannual examination in January.

With the resumption of academic duties in September, 1896, the new arrangement of the courses of study in law and history became operative. The entire first class attending recitation daily between the hours of 2 p. m. and 4 p. m. On Monday, Wednesday, and Friday instruction was given in law, and on Tuesday and Thursday in history, the same instructors and section rooms being used for both branches of study.

Myers's General History, the text-book adopted by the Academic Board, replaced Swinton's Outlines of the World's

History, which have been in use since the reintroduction of the course of study in history in 1883. The new text-book was so arranged as to enable the course in ancient history to be completed during the first term, leaving the study of mediæval and modern history for the longer term from January to June.

The methods of instruction in history are the same in all respects as those prevailing in the department of law, which have already been described. The best attainable maps are constantly and freely used in the course of instruction, and a part of the written recitations in this subject will be devoted to the graphic representation of the growth and development of the principal states of antiquity and to the origin, colonization, and territorial development of the great states now constituting the civilized world.

I.

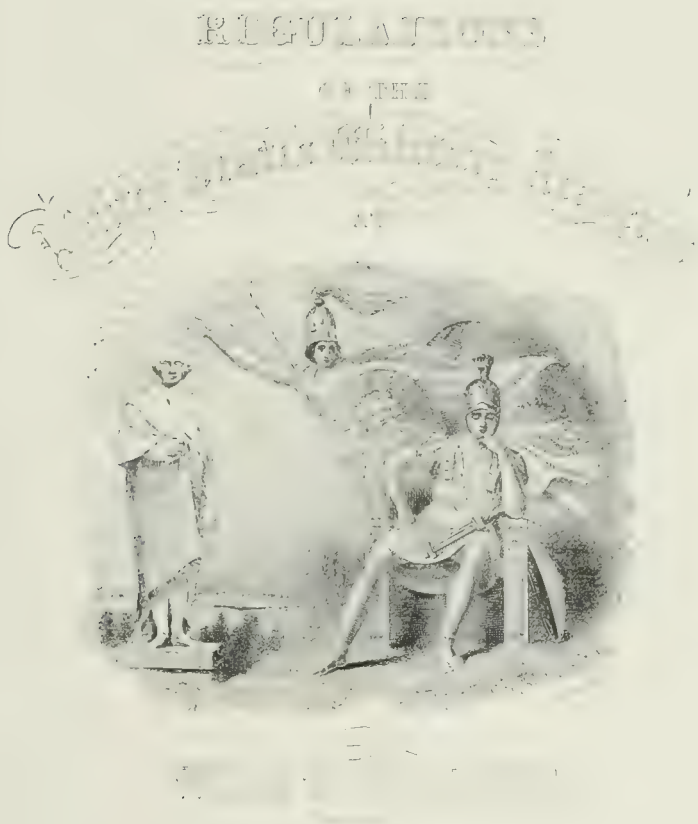
HISTORICAL SKETCH OF THE TACTICAL DEPARTMENT, ETC.

[The following historical sketch of the department of tactics was prepared by Col. S. M. Mills in 1896 for the report of the Superintendent for that year. Since that date the department has been very materially expanded, modified, and improved. The development and improvement is exemplified by the full extracts from the reports of the commandants who have succeeded Colonel Mills.]

From the earliest days of the Military Academy, 1802, Cadets have received practical instruction in tactics; it was not, however, until many years later that Congress, by act dated June 12, 1858, recognized the department by law, and designated the commanding officer of the corps or battalion of Cadets as commandant of Cadets and instructor of artillery, cavalry and infantry tactics.

The following extracts, taken from General Cullum's history of the Military Academy and from other sources, is of interest, and has a connection in showing the development of this department:

Instruction.—From 1802 to 1812 the term time varied; usually began in April and ended in November; the remainder of the year the Cadets were absent. Study hours after 1805 were from 8 a. m. to 1 p. m., 2 to



FRONTISPIECE TO THE REGULATIONS, U. S. M. A., 1853.

From a drawing by Professor West

4 p. m., and in the evening, and drills and practical exercises from 4 p. m. to sunset and occasionally before breakfast.

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The instructors for all purposes at any one time never exceeded four and sometimes were reduced to one. The instruction in infantry included the manual exercise with the musket and the infantry drill extending to the school of the company, the drill with field pieces and mortars, and a little target practice.

* * * * * * *

Regulations.—The first regulations were made immediately after the opening of the Academy in 1802; were very brief, and adapted to the small requirements of the institution. After an experience of eight years a more extended code was approved April 30, 1810, and this is the basis upon which the school rests to this day. These regulations established 15 to 20 years as the age of entrance; obliged Cadets to serve the United States for four years unless sooner discharged; abolished furloughs except during vacations or under peculiar circumstances; prescribed the same uniform for all Cadets of the different arms of the service, and ordained minor rules for interior police and discipline. Previous to the adoption of these regulations and between 1802 and 1810 Cadets were admitted to the Academy without mental or physical examinations on any day or in any month of the year. Of the small number that were present at any time some had good preliminary education before coming to West Point; a few were college graduates; one had been an officer in the British army; another had practiced law in the supreme court of New York, and generally they had more knowledge and maturity of mind than those of the present day, but were of all ages from 12 to 34 years, one or two being married men with several children.

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Quarters.—Cadets were lodged with soldiers in the old "Long Barracks" of the Revolution (near the site of the present hotel) and were instructed in a two-story wooden building which served both as an academy and for headquarters.

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Discipline.—Little can be said for the discipline during this period, except when personally supervised by Colonel Williams, the Superintendent, but when he was out of the service, 1803–1805, and when absent on other duty, 1806–1809, great irregularities took place from want of proper control on the part of the commanding officer, but more because the instructors were all civilians and foreigners.

* * * * * * *

The law of April 29, 1812, authorized the appointment of 260 Cadets and an academic staff. On the last day of September, 1812, there was present only one officer, a captain of engineers, and one new Cadet.

April 15, 1813, the Military Academy, with less than a dozen Cadets, resumed its existence.

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In 1814 a civilian was appointed to take charge of the Cadet commons.

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The prescribed uniform at this time was a coat and pantaloons of blue cloth, round hat with black silk cockade and gilt eagle, and Jefferson shoes. The coat was single-breasted, with one row of bullet buttons and a standing collar. The belts were black, and the muskets the same as those used by soldiers, except a lighter one for the small boys. Each Cadet was expected to wear a sword, but few possessed the weapon.

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During the summer of 1814 the Cadets, under command of the commanding officer of the post and Acting Superintendent, made an excursion to Governors Island, New York Harbor, and another excursion of three days to New York was made in the summer of 1816.

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The regulations approved July 2, 1816, under the head of military instruction, prescribed infantry and artillery tactics, practical gunnery and camp duties, and broad and small sword exercises.

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Pierre Thomas was the first sword master, appointed in May, 1814. Sword exercise was only given to such Cadets as were specially selected.

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The present uniform for Cadets, with slight differences, was adopted September 4, 1816.

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During the period from 1812 to July 28, 1817, when Capt. and Bvt. Maj. Sylvanus Thayer was appointed Superintendent, the course of instruction prescribed by Regulations was practically ignored, except infantry and artillery drills, which were the Acting Superintendent's delight, and were well taught by him in person, but were necessarily limited, owing to the small number of Cadets to exercise and the few pieces of ordnance for drill and target practice.

* * * * * *

There was no officer designated specially as instructor of tactics prior to 1818. The Acting Superintendent from 1814 to 1817 was commander, professor (teaching all branches then taught), and, when need be, chaplain.[a]

The recorded history of this department may be considered, properly speaking, to date from the time that Bvt. Major and Captain Sylvanus Thayer assumed command and the superintendency of the Military Academy.

He at once organized the Cadets into a battalion of two companies, officered by members of their own body, with a

[a] For other data of this kind see Volume II pp 103-104

colonel at its head and an adjutant and a sergeant-major for his staff, and appointed an officer of the Army to command the battalion, as instructor of infantry tactics and in soldierly discipline, who was responsible for the interior police and administration.

Second Lieut. G. W. Gardiner, of the Corps of Artillery, was detailed for this duty temporarily September 15, 1817, and was succeeded by Capt. John Bliss, of the Sixth Infantry, April 2, 1818, who was the first commanding officer of the Battalion of Cadets and instructor of infantry tactics. The position was not known as Commandant of Cadets until the Regulations of 1825. The Regulations of 1821 provided that a captain or field officer should be detailed as instructor of infantry tactics.

These regulations also provided for the following instruction in this department: The system of infantry tactics established for the Army of the United States and to include instruction in the school of the soldier, school of the company, school of the battalion, and the evolutions of the line, the exercises and maneuvers of light infantry and riflemen; the duties in camp and garrison of privates, noncommissioned officers, and officers, including those of guard and police.

In 1818 the commanding officer of the Battalion of Cadets was first designated as the inspector of the Cadet commons, and the Regulations of 1825 makes him the permanent president of the board to audit the accounts of the Cadets' mess and board of inspectors of supplies.

In 1821 was first introduced the study of infantry tactics as a regular course, recitations upon which were held between 2 and 4 p. m., the text-books being the rules and regulations prescribed for the infantry branch of the service.

From 1820 to 1827 there were two assistant instructors of infantry tactics. After that period for a number of years three, and later, 1852, four, assistants were authorized.

July 20, 1821, the Corps of Cadets made a notable summer excursion to Boston, Mass., under Major William J. Worth, the then Commandant and afterwards distinguished general. The Corps went by steamer to Albany, and thence marched to Boston, where they spent two weeks; thence they marched to

Providence, R. I., where they spent several days; then resumed the march to New London, Conn., having marched more than 310 miles; thence by steamer to New Haven; after a few days' stay there they embarked again for New York and by steamer the same day for West Point, N. Y., where they arrived September 25.

The Regulations of 1825 provides for a battalion of four companies, and designates the instructor of infantry tactics and commanding officer of the battalion of Cadets as "Commandant of Cadets," and first mentions the "officer in charge," and defines his duties, which were practically the same as at present. The Regulations also for the first time provide that the Corps of Cadets shall be divided into as many squads as there are tables in the mess hall, and when the signal for breakfast, dinner, and supper is sounded, these squads will assemble under the direction of the first or second carver, and shall march to the mess hall by the superintendent of the mess hall.

The Regulations of 1829 make the first mention requiring explanations to be submitted for offenses; from this time until 1857 all explanations were required to be submitted in writing. From 1857 until 1866 they were required to be submitted verbally, and if unsatisfactory to the commandant might be submitted in writing. From 1866 until 1892 they were all to be submitted in writing. From 1892 until the present time they may be submitted verbally and in writing; if unsatisfactory to the commandant may be submitted in writing. From the date when written explanations were first required various forms of submitting the excuses have been prescribed. First, the form prescribed that it should be characterized as "offense;" then follows the "excuse;" later it was known as "delinquency;" then follows the "explanation;" then as "report," and followed by "explanation;" finally, and at present, the form is that prescribed for official correspondence in the service.

In 1837 the first instructor of cavalry tactics was appointed.

In 1838 the term of service of Cadets was increased to eight years, unless sooner discharged.

In 1839 the regulations prescribe that during the encampment Cadets of the first class should study the evolutions of the line in the system of infantry tactics prescribed for the Army, and recite upon and explain the same to the instructor. Also, that selected portions of the General Regulations of the Army should in like manner be studied and recited upon. This was continued until the summer of 1862.

In 1839 a sergeant and five dragoons were ordered to West Point, N. Y., from Carlisle Barracks to aid in exercises and instruction of Cadets in riding. Twelve horses were supplied by the Quartermaster's Department. The sergeant was discharged the service and, as a civilian, appointed riding master. At this time were also purchased the necessary horses and harness for the light battery. Previous to this time Cadets hauled the pieces and carriages about by means of rope harness.

In 1840 it was provided by law that the commander of the Corps of Cadets should be either the instructor of infantry tactics, of cavalry and artillery, or of practical military engineering.

In 1842 Regulations first designated an officer as instructor of artillery and cavalry tactics.

In 1849 the Regulations designated the instructor of cavalry as instructor in riding. The riding master disappeared in 1852.

In 1852 the register shows the "commandant" and instructor of infantry tactics with four assistant instructors of infantry. In 1857 the Regulations provide that at the hour appointed for breakfast, dinner, and supper the companies would be formed and united and marched to mess hall by senior cadet officer present.

On June 12, 1858, Congress first recognized the title of "Commandant of Cadets," and provided by law that "the Commandant of Cadets shall have the local rank and the pay and allowances of a lieutenant-colonel of engineers, and besides his other duties shall be charged with the duties of instructor in the tactics of the three arms of the service."

February 28, 1853: First mention of an officer as instructor

in small arms and military gymnastics. The sword master was his assistant. This instruction was discontinued on April 24, 1861.

September 12, 1859: During the five-year course, by direction of the Secretary of War, the subjects of strategy, grand tactics, outpost duty, army organization and administration, equitation and veterinary science were transferred to the second class, department of tactics, and the Commandant of Cadets was directed to prepare a programme for instruction. For want of proper number of assistants in the tactical department the commandant recommended that the subjects of strategy, grand tactics, and outpost duty be continued in the first class, department of engineering. This was approved October 20, 1859.

These subjects, together with infantry and cavalry tactics, were taught in the first-class course, to include the June examination of 1860; after that time these subjects were discontinued in that class. After the January examination of 1860 the above-mentioned subjects were also taught in the second class, department of tactics, up to and including the June examination of that year. From September, 1860, until May 4, 1861, these subjects were taught in the second class, department of tactics. At the end of this time the course was again changed to four years, and the subjects of strategy, grand tactics, and outpost duty were transferred back to the first class, department of engineering. The subjects—viz. army organization and administration and veterinary science—were dropped. The other subjects were continued in the second-class course.

The text-books at this period were Tactics of Three Arms; Tactics for Garrison, Siege, and Field Artillery; Youatt on the Horse; Mahan's Treatise on Advanced Guards and Outposts; Jomini's Art of War; Thackeray's Army Organization and Administration, and Army Regulations.

While this additional theoretical course was in this department, it was, under the Commandant of Cadets, taught as follows:

The cavalry assistant taught cavalry tactics, equitation, and outpost duty; the senior infantry assistant taught infantry tactics, strategy, grand tactics, and logistics; the senior

artillery assistant taught artillery tactics and army organization and administration.

After May, 1861, and the return to the four-year course, the theoretical branches taught in the department were those described above, and from which there has been but little change to the present day.

In 1863, during the New York riots, there occurred an incident in the history of West Point and of this department which has never been made of record. Rumors reached the authorities of the intention of the disorderly element of New York City to visit and destroy the Cold Spring Foundry, which at that time was the largest establishment for making guns in the country, and at the same time to visit and burn West Point. Ball cartridges were issued to Cadets, and the other military resources of the post were at once made use of, including the issuing of arms and performing of guard duty by civilians and employees attached to the Academy. Pickets of Cadets, with a field gun at each point, were established at the south and north docks and Gees Point; the river and back roads at challenging intervals were lined with armed sentinels. This state of armed resistance was kept up for several days and nights. No attack was made. Since this time armed sentinels have patrolled the post continuously night and day.[a]

In 1873 the Corps of Cadets took another excursion from West Point to Washington, D. C., and were absent several days participating in the ceremonies of the second inauguration of General Grant as President, Lieutenant-Colonel and Brevet Major-General Emory Upton in command. In 1876 the corps visited Philadelphia, where it spent a week on the occasion of the centennial celebration of the Declaration of Independence, Lieutenant-Colonel and Brevet Major-General Thomas H. Neill in command. The corps has in more recent years made other short excursions from West Point for a day or two, and on one rather notable occasion the corps visited the World's Columbian Exposition at Chicago in the summer of 1893, leaving West Point August 17 and

[a Sentinels were posted both night and day as early as 1795, but the practice has not been continuous.—EDITOR.]

returning to West Point August 30, 1893, Lieutenant-Colonel Samuel M. Mills in command.

List of Commandants of Cadets.

Name	Rank and regiment.	Time	
		From—	To—
George W. Gardiner ..	Second lieutenant, Corps of Artillery	Sept. 15, 1817	Apr. 2, 1818
John Bliss ...	Captain, Sixth Infantry.....	Apr. 2, 1818	Jan. 11, 1819
John R. Bell ...	Captain, Light Artillery	Feb. 8, 1819	Mar. 17, 1820
William J. Worth	Captain, Second Infantry, brevet major.....	Mar. 17, 1820	Dec. 2, 1828
Ethan A. Hitchcock...	Captain, First Infantry	Mar. 13, 1829	June 24, 1833
John Fowle	Major Third Infantry	July 10, 1833	Mar. 31, 1838
Charles F. Smith	First lieutenant, Second Artillery	Apr. 1, 1838	Sept. 1, 1841
J. Addison Thomas...	First lieutenant, Third Artillery..	Sept. 1, 1842	Dec. 14, 1845
Bradford R. Alden ...	Captain, Fourth Infantry	Dec. 14, 1845	Nov. 1, 1852
Robert S. Garnett	Captain, Seventh Infantry, brevet major, U. S. Army.	Nov. 1, 1852	July 31, 1854
William H. T. Walker	Captain, Sixth Infantry, brevet lieutenant-colonel, U. S. Army.	July 31, 1854	May 27, 1856
William J. Hardee...	Major Second Cavalry, brevet lieutenant-colonel	July 22, 1856	Sept. 8, 1860
John F. Reynolds.. .	Captain, Third Artillery, brevet major.....	Sept. 8, 1860	June 25, 1861
Christopher C. Augur	Major Thirteenth Infantry.....	Aug. 20, 1861	Dec. 5, 1861
Kenner Garrard ..	Captain, Fifth Cavalry	Dec. 5, 1861	Sept. 25, 1862
Henry B. Clitz	Major Twelfth Infantry.....	Oct. 23, 1862	July 4, 1864
John C. Tidball	Captain, Second Artillery, colonel volunteers, U. S. Army	July 10, 1864	Sept. 22, 1864
Henry M. Black.....	Major Seventh Infantry, colonel volunteers, U. S. Army.	Sept. 22, 1864	July 1, 1870
Emory Upton	Lieutenant-colonel First Artillery, brevet major-general.	July 1, 1870	June 3, 1875
Thomas H. Neill	Lieutenant-colonel Eighth Cavalry, brevet major-general.	July 1, 1875	June 30, 1879
Henry M. Lazelle	Lieutenant-colonel Twenty-third Infantry.....	July 1, 1879	Aug. 4, 1882
Henry C. Hasbrouck .	Captain, Fourth Artillery	Aug. 22, 1882	Feb. 1, 1888
Hamilton S. Hawkins	Lieutenant-colonel Twenty-third Infantry...	Feb. 1, 1888	Sept. 1, 1892
Samuel M. Mills.....	Captain, Fifth Artillery.....	Sept. 1, 1892	June 15, 1897
O. L. Hein ..	Captain, First Cavalry	June —, 1897	June 15, 1901
Charles G. Treat.....	Captain, Artillery Corps.....	June —, 1901	.....

The scope of this department in the beginning included infantry tactics, interior police and discipline, and the supervision of the Cadet commons. The functions of the department were not appreciably enlarged until the law of 1858, which made the Commandant of Cadets instructor of tactics in the three arms of the service and increased for the two years following the theoretical course by transferring to this department the subjects heretofore mentioned and taught in the first class, department of engineering.

The Commandant of Cadets has always had supervision of the instruction in saber and broadsword exercise, the sword master being a civilian. From February 28, 1858, until

April 24, 1861, instruction in small arms and military gymnastics was added to this instruction, and a commissioned officer not attached to the tactical department had charge of it. After 1861 this instruction was returned to the Commandant of Cadets with a civilian as sword master, but without gymnastics. In 1881 an officer of this department reorganized gymnastics at the Academy, which instruction was continued by an officer, the civilian as sword master, until February 1, 1885, when the present incumbent was appointed and has since, under the direction of the Commandant of Cadets, had charge of all this instruction. This step has been an important and most successful one in the development of this part of the instruction. The department has developed otherwise along the lines of general improvement in military instruction adopted and employed in the service during the past forty years, a description of which would involve the history of these modern methods.

The following are some of the changes made in the methods of administration and changes of regulations, with the approval of the Superintendent, that have been introduced in the past four years—1892 to 1896: The assembling of the officers of the department daily in the Commandant's office, to hear reports of the previous day, to receive the Commandant's instructions for the day, interpret regulations so that in all dealings and intercourse with Cadets the practice and rulings should be uniform; adjutant excused from making consolidated morning report, but required, before signing, to make note of required data for details, etc.; revised, reduced, and simplified reports and returns required from Cadet companies and from headquarters Corps of Cadets to correspond with army methods and returns; made the salute of Cadets to correspond with the drill regulations; revised, rearranged, and indexed interior regulations, known as blue book; extended the hours of Commandant of Cadets for transacting business with Cadets; introduced verbal explanations; introduced new form in submitting written explanations to correspond with the official correspondence found in the Service; revised and printed the lectures for second class on subjects modified to read, staff, post, and company administration; promulgated

rules and regulations in the use of the gymnasium and natatorium; attached linen collar to dress and fatigue coat with fastenings; modified riding trousers and introduced leggings; discontinued wearing waist belt to church and equipments in quarters at Sunday morning inspection; discontinued the police inspection after reveille and of signing a certificate pertaining thereto; introduced the system of anthropometric records and extendedt he same to include other classes besides the fourth; reintroduced the battalion color; introduced the regimental drill and parade; cordage and application of tackles for raising heavy weights; during the encampment all drills and instruction, except dancing, to take place in the morning; during the absence of the second class on furlough all appointments of sergeants made from the first class. Experience has thus far shown good results from these changes.

Statement of the Course, etc., 1896.

THEORETICAL.

Text-books used.—Drill Regulations, United States Infantry, Cavalry, and Artillery; Tidball's Manual of Heavy Artillery; Blunt's Firing Regulations for Small Arms; Fitzwagram upon Horses and Stables; Wagner's Service of Security and Information; Guard Manual; Articles of War and U. S. Army Regulations. Recitations only in first three named, twelve recitations in infantry and ten in artillery; drill regulations between November 8 and December 31, second class year, and twelve recitations in cavalry drill regulations. February, first class year, sections attending in all cases on alternate days. Length of lessons, about 16 pages, and no lessons in review.

The hours of study and recitation are from 11 a. m. to 1 p. m. The length of the recitation is one hour and the total number of hours allowed to each subject, both inside and outside the section room, is 24 for infantry, 24 for cavalry, and 20 for artillery. The course is the same for all sections. Short lectures upon company, post, and staff administration are given to the second class from November 1 to March 15 weekly, half the class attending at a time for one hour.

The lectures, nine in all, are printed and delivered to the class in advance. The lecture is read to the section by the instructor and the hour spent in explaining points referred to. The lecture is required to be read over carefully by Cadets before coming to the lecture room; notes are not taken upon it. The lectures are compilations from Army Regulations and Orders of the War Department, and deal with the following subjects:

1. Instructions of recruiting officers; reports and returns.
2. Company organization; how men are gained and disposed of.
3. Army ration.
4. Company records; reports and returns.
5. Duties pertaining to the quartermaster's department.
6. Subsistence and ordnance departments.
7. Property accountability.
8. Money accountability.
9. Duties of post treasurer and post adjutant; returns and reports; the post exchange.

These lectures, in pamphlet form, are subsequently and before graduation given to the class to carry into the service.

Three lectures are given to the first class by the senior assistant instructor of cavalry in latter part of June and in connection with field exercises during that period.

The following subjects are treated: Preparations for field service; marching and camping; bits and bitting (illustrated); stable management; the horse's foot, shoeing; common diseases of the horse; the conformation and points of the horse; the age of the horse as indicated by the teeth, and packing the Moore pack saddle.

Instructions are also given to members of the first class as to the proper method of making out the daily reports of a company.

In addition to the above one hour is spent daily in camp during latter half of June, when there is but little practical work, in readings and explanations of the guard manual, Articles of War, and regulations upon the police and government of Cadets in camp, based upon Army Regulations.

PRACTICAL WORK DURING THE FOUR YEARS.

First year.—First three weeks, school of the soldier, settings up, manual, and exercises of the squad; three drills daily. Thereafter, and until the new class is sufficiently advanced to become part of the battalion (a period of about two weeks), two drills daily. In camp, from June 30 to August 28, practical instruction in military police and camp discipline. Practical instruction in guard duty from about July 4. From July 5 to August 28, artillery drill each week day, one hour; school of the cannoneer; siege and mortars on alternate days; swimming for one hour, until all the class have qualified—qualification consists in the Cadet being able to swim at least ten minutes with chest stroke; infantry drill three-fourths of an hour daily, except Saturday and Sunday, in August, school of the company. September: Infanty drill, school of the company, battalion, and regiment. October: Infantry exercises of the squad in extended order half the month; the remaining half, school of the cannoneer, siege and mortar drill, and pointing and aiming drills, small arms. March 15 to 31: Infantry, school of the company. April: Infantry, extended order, use of cover and battle exercises of the squad, and school of the cannoneer, siege and mortar drill. May: Infantry, school of the company and battalion, close and extended order. From October 1 to June 1, three-fourths of an hour daily in the gymnasium, Sundays excepted, use of the sword and bayonet, and military gymnastics.

Second year.—In camp June 15 to August 28; practical instruction in guard duty, etc., same as in first year; after July 4, instruction in small arms, gallery practice; artillery drill, school of the cannoneer; instruction in cordage; infantry, school of the company same as first year; drillmasters for the fourth class squads and gunners and chiefs of detachment for fourth class batteries. September: Infantry, school of the company, battalion, and regiment. October: Heavy artillery, seacoast battery; squad leaders for fourth class squads, extended order and instruction in small arms; range practice. November 1 to March 15: Riding, school of the

trooper on alternate days. March 15 to 31: Same as first year. April: Same as October. May: Same as first year.

Third year.—September: Same as first and second years. October: School of the cannoneer, light artillery. November 1 to May 1: Cavalry, school of the trooper, troop, and squadron. March 15 to 31: Infantry, same as in first and second years. April: Artillery, same as October. May, same as first and second years.

Fourth year.—In camp June 15 to August 28. Cavalry exercises, advance and rear guards and outposts, latter half of June. Instructions as to the method of giving commands. Practical instruction in heavy artillery, mechanical maneuvers, use of blocks and tackles, and in light artillery, school of the battery. Infantry drill, August, as in first and second years and as officers, noncommissioned officers, and guides of companies. September: Infantry, as in other years. October: Light artillery, school of the battery. September to June: Cavalry, school of the trooper, troop, and squadron. March 15 to 31: Infantry, as in other years. April: As in October, and infantry, extended order, battle exercises. May: As in other years. Practical instruction throughout the year in the exercise and responsibilities of command as officers and noncommissioned officers in camp, in charge of subdivisions in barracks, and in command of companies at infantry drill, and of various detachments at artillery and cavalry exercises.

The members of the class before graduation are sent to visit the squad rooms and stables of the cavalry detachment to see the manner in which enlisted men are quartered and cared for.

Organization of the Department, 1896.

The department as now organized has charge of all strictly military drills and exercises and military gymnastics, including the sword and bayonet. The personnel is as follows:

A Commandant of Cadets with the rank of lieutenant-colonel. He is in immediate command of the Corps of Cadets,

the instructor of tactics, inspector of the Cadets' mess, president of the board of inspectors of supplies for Cadets, and in charge of the police, discipline, and administration of the corps.

One senior assistant instructor of cavalry tactics, usually a captain, member of the board of inspectors of supplies for Cadets.

One senior assistant instructor of artillery tactics, usually a first lieutenant. He is under the Commandant, the inspector of clothing for Cadets.

One senior assistant instructor of infantry tactics, usually a first lieutenant.

Four assistant instructors of tactics, commanding the Cadet companies, lieutenants.

One assistant instructor in cavalry, lieutenant.

An instructor of military gymnastics and use of the sword and bayonet, civilian; appointed permanently.

The senior assistant instructor in cavalry and assistant take all the drills in riding.

The infantry and artillery drills are divided as nearly as possible equally among the other officers of the department.

The instructor in military gymnastics, etc., has charge of the exercises in swimming also.

The four assistant instructors, commanding Cadet companies, conduct the infantry drills of their companies and are responsible for the ordnance equipments issued to them. They are also, under the regulations of the Academy and instructions from the Commandant, directly in charge of the police and discipline of the companies. They are required to make inspections of their companies at least twice daily before taps, both in camp and in barracks, with frequent inspections after taps. The official papers of the companies pertaining to delinquencies, privileges, etc., pass through their hands.

All the officers of the department, except the head and the senior in cavalry, form a roster for "officer in charge." This officer is the executive head of the department for the day and represents the Commandant in his absence.

Description of a Recitation; Class Reports; Transfers, etc.

For recitation the classes are divided into sections, and the system of instruction, marking, etc., conforms to the practice of the other academic departments. Weekly class reports and exhibition of marks the same. Transfers are rarely made on account of the small number of recitations.

Review of the Present Course, Method of Instruction, Advantages, etc., 1896.

The present course designs to give to the Cadet the elements of a military education, as comprehended in the drill regulations of the three arms of the Service and in the other manuals and lectures referred to in the theoretical course; and in the practical work to impress upon him a thorough knowledge and appreciation of discipline and of military police, both in barracks and in camp; to educate him in the important qualities of attention to detail and of promptness in all his work; to give him the physical training necessary for the work and hardships he may be called upon to endure; and in conjunction with the other departments, to instill into his mind during his four years at the Academy a proper spirit of subordination and obedience to authority and to develop his confidence and capacity for command.

The physical training, so far as it relates to work in the gymnasium, aims at the following results:

1. To counteract by judicious and well-regulated exercise the mental strain which the successful mastery of the academic course makes necessary;

2. To improve the physical and general carriage, develop strength, health, and endurance; and

3. To develop agility, activity, and grace; also self-reliance, self-control, precision, and accuracy.

These results are accomplished by a thorough system of progressively arranged exercises, from which are excluded all movements of questionable value, and every one in the execution of which the element of danger is involved.

At the beginning of each year every Cadet is measured in accordance with the rules prescribed by the American Association for the Advancement of Physical Education. These measurements, nearly 60 in number, are compared with those of the average student of the same age; the weak points are noted and directions given as to how they may be strengthened. Only members of the fourth class attend the regular drills, but the above measurements are made for Cadets of every class and the members of the upper classes are encouraged to avail themselves of the opportunity the gymnasium affords.

Each class spends three of the four summers in camp, a total of about two hundred and ten days. The remainder of the four years, with the exception of two and one-half months on furlough at the end of the second year, is spent in barracks.

The Cadets are organized, under regulations prescribed by the Superintendent, into a battalion of four companies, each company composed of fractions of all four classes. The Cadet officers for the companies, with an adjutant and quartermaster for the battalion, are selected from the first class; the noncommissioned officers from the second and third classes. The selections are made by the Superintendent, upon the recommendation of the Commandant, from "those Cadets who have been most studious, soldier-like in the performance of their duties, and most exemplary in their general deportment."

The companies have separate quarters in barracks, separate tents and company streets in camp, and separate tables at meals.

The tents used in camp are the regulation wall tents with flies. Two Cadets live in each tent, except members of the fourth class, most of whom live three in a tent.

Two Cadets live in a room in barracks.

Cadets are allowed in camp only the minimum of bedding, clothing, etc., needed for the climate and season and consistent with a neat and soldierly appearance at all times.

The Commandant of Cadets and the four assistant instructors of tactics, with an assistant surgeon, live in camp.

All regular drills in camp are finished before 1 p. m. During the academic term the practical work in the department is done between the hours of 4 and 6 p. m., with the exception of a portion of the cavalry exercises and the military gymnastics.

Two dress parades are held daily in camp, at troop and retreat, except on Saturday, when the troop parade is replaced by an inspection.

One dress parade is held daily while in barracks, at retreat, except on Saturday, when it is replaced by an inspection at 2 p. m.

A complete guard is maintained at all times in camp and the instruction in this duty is most thorough. During the term in barracks a guard is posted in the divisions of barracks only during study hours in the evening to preserve quiet and to prevent Cadets from visiting or from leaving the barracks without authority.

The companies are practiced with the fire engine and apparatus one week each autumn, and are turned out for service whenever the emergency justifies it.

Cadets are formed by companies, classes, details, or sections, and the rolls called for all drills and exercises and for marching to meals and to recitations. Reports of all roll calls are rendered to the cadet officer of the day, whose duty it is to promptly investigate every case of absence reported to him.

Regulations are prescribed by the Commandant of Cadets, approved by the Superintendent, upon the arrangement of rooms in barracks, tents, in camp methods of conducting official correspondence, uniform for drills, privileges and minor duties of Cadets, to more fully carry out the regulations of the Military Academy. These regulations are bound in small book form and one copy is issued to each Cadet.

The method of instruction, broadly stated, may be said to be based upon the principle of requiring each Cadet to learn by actually performing them all the duties of a private soldier in the different arms of the service, beginning with the drill of the recruit, and thereafter the duties of the different

grades of noncommissioned officer and of an officer, in so far as the conditions surrounding the course will permit.

Each Cadet has at some time during the course the opportunity of exercising command in all the grades of noncommissioned and commissioned officer up to and including that of captain of a company. The method is progressive and follows the logical principle of assigning to a Cadet supervision and command in any drill or exercise as soon as practicable after he has himself become proficient in it. To illustrate: the third class furnishes the drillmasters for the fourth-class squads, school of the soldier. These in their work are supervised by Cadet officers of the first class, and these latter receive their instructions from a commissioned officer, who has general charge of the drill. Thus does the Cadet have combined, almost from the beginning of his course, the practice of command and the exercise of authority in drills in which he has become proficient, along with the work and instruction in drills not yet mastered; the proportion in the former division increasing naturally up to his graduation.

The officers of the department are assembled daily by the Commandant to receive any instructions he may desire to give them upon the drills and duties of the day; to hear reports and observations of the previous day; to point out and correct errors, if any have been made; to interpret tactical and other doubtful points, and to adopt absolutely uniform teaching and practice, so that all Cadets, though the battalion be divided for purposes of administration into four companies, shall receive the same and uniform instruction throughout, so far as it is practicable. This supervision of the daily work is a feature introduced by the present head of the department, and has been of incalculable benefit, enabling the Commandant through these means to keep closely in touch with every phase of discipline and instruction. This system, together with the more recently adopted provisions of permitting Cadets to submit verbal explanations, gives the Commandant an opportunity of personally coming in contact with every Cadet in the Corps and of learning his character and special aptitude for his work, to correct and point out to him the true and proper direction

of his line of duty and its connection with the duties that may devolve upon him as an officer.

It is thus by constantly and unceasingly, patiently and earnestly placing before the Cadet his obligations to duty, and impressing upon him the qualities of mind and character that constitute the high-minded, truthful, and conscientious officer, that the Commandant of Cadets, in my judgment, fulfills the most important part of his many responsible duties.

[Extracts from report of Commandant of Cadets, September 18, 1898—Colonel Hein.]

INSTRUCTION IN DRILL AND TACTICS.

(*a*) *Practical.*—The course of practical military instruction embraced the drill of infantry, cavalry, light and horse artillery, and siege and seacoast artillery; tactical and minor tactical exercises of infantry and cavalry; practice marches of infantry, cavalry, and light artillery; target practice with rifle and revolver, and with field, siege, and seacoast guns; fencing with the foil, broadsword, and bayonet; gymnastics and swimming; instruction in castrametation; cavalry and artillery stable duties, and practice in some of the duties especially devolving upon these arms.

The effort was made to widen the scope of the course of practical military instruction—especially that held during the summer encampment—and to place it upon a more practical basis; also to carry out the principal and most important aim of this department, the promotion of the self-reliance and confidence, sense of responsibility, and development of character of Cadets, in order to prepare them more fully for the performance of the duties devolving upon the young officer when he first joins his regiment or corps, and which he is expected to be able to enter upon at once.

To effect this it was found necessary to rearrange the summer programme of military instruction so as to give more time for the work to be accomplished and to give more opportunities for Cadets, especially the privates of the first class, to exercise the command and responsibilities devolving

upon officers and noncommissioned officers. This was done by suspending troop parade, except on Sundays, and by postponing guard mounting until immediately after evening parade; by dividing the forenoon into two drill periods—first, from 7.10 to 8.30 a. m., and, second, from 9 to 10.45 or 11 a. m., or even later if desirable or necessary to obtain the best results—and by making the instruction in these drill periods interchangeable; by reserving an entire day of each week for a practice march, and by placing the privates of the third class on the roster for corporal of the guard and those of the first class on the permanent roster for officer of the day and guard, and requiring the latter to frequently act as captains and lieutenants at the various drills and exercises of each arm.

More time and attention were given to exercises in applied tactics and minor tactics, on varied ground in and beyond the reservation, and the practice marches were generally combined with field exercises. These exercises and practice marches were as follows:

June 21.—Cavalry practice march of 11 miles and exercises in minor tactics, stable duties performed on return (first class); duration, about nine hours.

June 24.—Cavalry reconnaissance (first class); duration, about nine hours. Exercise in infantry outpost duty (third class); duration, about two hours and twenty-four minutes.

June 27.—Outpost duty and patrolling (third class); duration, three hours and thirty-five minutes.

June 28.—Advance guard and rear guard duties (third class); duration, three hours and thirty-five minutes.

June 29.—Infantry practice march (third class); about 7½ miles.

June 30.—Advance guard exercise and infantry attack (third class); duration, two and one-third hours.

July 1.—Light-battery practice march of about 12 miles and target practice with projectiles (first class). All duties pertaining to harnessing, hitching, and care of horses (grooming, watering, feeding, and bedding down) were also performed by the first class. On this march the cadets acted as

drivers, noncommissioned officers, and officers. Infantry practice march of three hours (third class).

July 8.—Infantry practice march, with exercise in advanced and rear guard (first and third classes); duration, four and three-fourths hours.

July 15.—Infantry practice march, with exercises in minor tactics and castrametation (first, third, and fourth classes); duration, seven and three-fourths hours.

July 22.—Infantry practice march and field exercises (first, third, and fourth classes); duration, four and one-half hours.

August 8.—Infantry practice march and field exercises (first, third, and fourth classes); duration, four and one-half hours.

August 21.—Infantry practice march to Camp Townsend, Peekskill, where a bivouac was established and field exercises carried out, consisting of an attack of three companies against one in an intrenched position and attack of a defile held by one company by three companies (first, third, and fourth classes); duration, twenty-seven hours.

As a preparation for practical field work, cadets had been given preliminary instruction in the duties of advanced guard, rear guard, outposts, etc., having been supplied with a manual of exterior guard duty, which they were required to read and study in camp.

Proper instruction in extended-order drill of infantry and in minor tactics has been attempted, with but little success, during the autumn and spring drill terms, on account of the insufficiency of time available and the lack of a suitable maneuver terrain in the vicinity of the post for this purpose; but the first-mentioned difficulty can be overcome by giving this instruction during the summer encampment, and the latter inconvenience be met in the future by the utilization of the ground formerly used as a cadet garden, which is now being put in order for this important instruction.

The course in rifle firing for all classes was extended and more systematically and progressively carried out than heretofore.

This instruction was facilitated by the preparation and issue

to Cadets of a small manual, Outline of Instruction in Small-arms Firing, based on Small-arms Firing Regulations.

Instruction in aiming, pointing, and gallery practice began and ended with the fourth class during the summer encampment; the third class had short and mid-range practice, and the first class mid-range practice only, the target range not having been yet prepared for long-range and group firing. Work on the range is now being done, however, and it will be ready for this practice during the autumn and spring terms.

The idea followed in this course was to give Cadets a complete outline course of the target practice carried out in the service, and also some preparation for the duty of musketry instructors.

Revolver practice (dismounted) was given to Cadets of the first class, it being impracticable to have mounted practice, on account of the limited time available for this purpose.

SPECIAL CAVALRY INSTRUCTION OF THE FIRST CLASS DURING THE SUMMER ENCAMPMENT, 1898.

Theoretical.—Saddles and saddling; bits and bitting; the saddle packed; age of horses to 20 years; nomenclature of horse; points of the horse; blemishes and defects, etc.; the foot and its shoe (seven lessons—lectures and explanations).

Practical.—Manual of the carbine mounted; folding saddle blanket; rolling overcoat; making packs; packing saddle; troop inspection armed with carbine; saber and pistol practice; march from 9 a. m. till 4 p. m., 11 miles, and practical care of horses (grooming, watering, feeding, and bedding down) on return; outpost duty; fighting on foot; age of horses.

At each drill Cadets were required to saddle and bridle their own horses and to unsaddle and unbridle on their return. All theoretical instruction was followed by such practical application as would impress the subject on their minds.

(*b*) *Theoretical.*—The theoretical instruction imparted in the department of tactics comprised recitations in the drill regulations of infantry, cavalry, and artillery, according to

the following programme as laid down in the regulations of the United States Military Academy:

First class, fourth year, cavalry drill regulations. Every other week day, Saturdays excepted, from November 1 to March 31, alternating with drawing. Ten lessons each of one hour.

Second class, third year, infantry and artillery drill regulations. Every other week day, from November 8 to January 1, alternating with chemistry.

Ten lessons in infantry drill regulations and 10 lessons in artillery drill regulations, each of one hour.

Some theoretical instruction in minor tactics to supplement that taught in the drill regulations was imparted during the summer encampment (on days not available for outdoor work) by means of lectures, by reading the Manual of Outposts, Advanced and Rear Guards, etc., prepared for this purpose for the use of cadets, and by the solution of simple, tactical problems.

Some little knowledge of the theory of musketry instruction is also a necessary preliminary to target practice, and this has been acquired by cadets by means of a little pamphlet ("Outline of instruction in target practice") prepared for their use.

MILITARY ADMINISTRATION.

The course in military administration consisted of—

Two lectures on instruction of recruiting officers and reports and returns pertaining to recruitment.

Two lectures on duties of post adjutant, post treasurer, and post exchange.

Two lectures on company records.

Two lectures on the ration.

Two lectures on duties pertaining to the Quartermaster's Department.

Two lectures on Subsistence and Ordnance Departments.

Two lectures on company organization.

One lecture on money accountability, etc.

One lecture on personal reports; to each half of the second class, divided into two sections for this purpose.

[Extract from report of commandant, Colonel Otto L. Hein, August, 1900.]

INSTRUCTION IN DRILL AND TACTICS.

(*a*) *Practical.*—The course of practical military instruction comprised the following branches: (*a*) Infantry, cavalry, and artillery drill and exercise; (*b*) tactical and minor tactical exercises; (*c*) target practice; (*d*) castrametation; (*e*) field intrenching; (*f*) pack train; (*g*) fencing, gymnastics, and swimming; (*h*) fire drills; (*i*) practice marches and field exercises.

The course began on September 1, and with the exception of branches (*g*) and (*h*) embraced the months of September, October, last two weeks of March, the months of April and May, last ten days in June, and the months of July and August—a total of about seven months. During the August and spring terms the time allotted for practical instruction averaged about one hour daily, four days each week, and during the summer term up to August 12 about two and one-half hours on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays, and three hours on Saturdays. From August 12 to 26, inclusive, the instruction hours began at 7 a. m., and there was no recall.

All the drills and exercises during the summer term (except from August 12 to 26, inclusive) were held between 7 and 10 a. m., and on Saturdays from 9 a. m. to 12 m.

(*a*) INFANTRY, CAVALRY, AND ARTILLERY INSTRUCTION.

Infantry.—This consisted of drills and exercises in the school of the soldier, company and battalion, which were held during September (17 drill days), March 15 to April 15 (17 drill days), May 14 to 31 (12 drill days), July 5 to August 11 (27 drill days). Infantry instruction preparatory to field exercises, and practice marches, was held on the six Saturdays during the last-mentioned period.

The members of the first class were detailed in turn as captains and lieutenants at the company and battalion drills and preparatory exercises, and as adjutant and quartermaster at the battalion exercises.

Cavalry.—Cavalry instruction during the year consisted of equitation in the riding school, drills in the school of the trooper, squad, troop, and squadron (close and extended order), and dismounted cavalry; also the ceremonies.

Much attention was given to proper bitting and saddling, and to packing the saddle, also to practice in the use of the ordinary civilian saddle as a necessary accomplishment, and for polo, which sport was given much encouragement.

Cavalry instruction was imparted progressively to the third, second, and first classes. The members of the first class were detailed in turn to command the platoons and troop at the troop and squadron drills.

Light and horse artillery.—This instruction comprised the school of the battery, light and horse artillery, with the first class detailed in turn as officers during the autumn, spring, and summer, and the third class as cannoneers during the autumn, spring, and part of the summer.

It also embraced the school of the driver, fitting of harness, use of the coupling rein, whip, bridling reins of off horse, instruction by pairs and teams unhitched, to post teams with their carriages, to hitch and unhitch, and instruction by teams hitched.

Light artillery target practice and ranging under the service conditions approximately was held during the latter part of the summer.

Artillery—3.2" gun foot drill.—This instruction was imparted to the fourth class during the months of October, from April 15 to May 15, and the months of July and August. It consisted of the service of the piece, instruction in aiming, setting the sights for indicated ranges and for indicated deflection; practice in aiming, bringing into line of sight a disk moved over the face of a target set up a short distance from the gun; fuze setting, explanation of the nature and working of the fuze by model fuze exhibited; practice in fuze setting by use of dummy shrapnel with holes (to indicate time train) and pins; fire discipline, instruction in the duties of the personnel and in the service of the guns in action; finding the range, establishing the long and short brackets, finding the length of the fuze.

This instruction is preparatory to the field practice of the light battery where projectiles are used and the conditions made more realistic.

The chiefs of platoon of this instruction battery were detailed in turn from the first class and gunners from the third class.

Siege-gun and mortar drill.—This instruction was given to the fourth class, with gun commanders from the first class, during the autumn, spring, and summer terms, alternating with the 3.2″ gun foot drills. It comprised the service of the piece, also instruction in nomenclature and general features of the pieces (rifling, breech mechanism); aiming (practical laying by open sight, correction of aim by observed results, use of sight and quadrant in conjunction, indirect laying); ammunition (weights, velocities); penetration, etc., effects of fire.

The course in cavalry, light and horse artillery, will, during the coming year, be put upon a plane of excellence heretofore unattainable.

In the past it has always been necessary to use the same horses for cavalry and artillery instruction, and to employ the enlisted men of the cavalry detachment as drivers. This condition no longer obtains since an artillery detachment and the necessary artillery horses have been authorized for instruction at the Military Academy.

Mountain gun artillery.—This consisted of instruction in the material (1.65 Hotchkiss mountain rifle), the gun, its ammunition, sights, etc., and the pack saddle and its accessories, in fitting pack saddle to mules, in the transportation of the battery by pack mules and by draft, and in the service of the piece.

This instruction was given to the first class during the spring and summer periods of instruction.

Recommendation has been made that the inferior Hotchkiss mountain gun of small caliber be replaced with the Maxim-Nordenfeldt 75 mm. mountain gun, which is officially reported to have given perfect satisfaction in the field, and it

is hoped that the modern gun may be furnished for use in the instruction of cadets as soon as practicable.

Machine gun.—Instruction in machine guns (10-barrel Gatling), consisted of the nomenclature and service of the piece, maneuver of the horsed gun detachment, and firing practice with blank ammunition, and ball ammunition on the target range. It was imparted during the autumn and spring periods to the second class as cannoneers, with officers detailed in turn from the first class.

Coast artillery.—Instruction in this branch was given to the first class in the autumn, to the second class in the spring, and the third class in the summer. The gun used was the 8-inch B. L. rifle on United States barbette carriage and 12-inch B. L. mortar on spring return carriage. It comprised the care, cleaning, etc., of the rifle and mortar, and manual of the same; use of horizontal position finder, setting up base end instruments, and measuring horizontal angles, taking and transmitting azimuths of moving vessels; use of plotting board to determine position, speed, and direction of moving vessels; relocating for use at gun.

This instruction is now placed in the third-class course, and will be given to that class hereafter, the class having previously had a theoretical course in coast artillery drill regulations in the section room, besides theoretical and practical instruction in the same line in the siege-battery instruction given to the class when fourth classmen.

(*b*) TACTICAL AND MINOR TACTICAL EXERCISES.

These exercises were held during the autumn, spring, and summer terms on the maneuver terrain, on the reservation, and contiguous country. They consisted of the attack and defense of a position (sometimes intrenched), of a defile, woods, etc., and battle exercise in the open; also exercises of advance guards, rear guards, outposts, and reconnaissance of the enemy and country. Some of the exercises were carried out by infantry and cavalry singly, and by these arms in combination with light and mountain artillery.

(*c*) TARGET PRACTICE.

Rifle.—The course of rifle target practice during the instruction year consisted of—

A. Sighting, position, and aiming drills, and gallery practice.

B. Short range, 100, 200, 300 yards; midrange, 500, 600 yards; and long range, 800, 1,000 yards, firing.

C. Skirmish firing, 600 to 200 yards.

As the course is now arranged the instruction in subdivision A is given to the fourth class during the period of recruit instruction, that in subdivision B to the fourth class in the spring and third class in the summer, and in subdivision C to the third class in the summer.

Revolver.—The course of revolver practice during the past year consisted of—

A. Position and aiming drill, and snap shooting with blank ammunition.

B. Dismounted practice at 10, 20, and 50 yards.

C. Mounted practice at a walk and gallop at the prescribed ranges.

The course of revolver practice is given to the first class.

The interest manifested by Cadets in their target practice was very gratifying and the work accomplished most satisfactory.

(*d*) CASTRAMETATION.

This course consisted of instruction in pitching shelter tents, wall and conical wall tents, and in laying out camps, and was given to the companies of the battalion of Cadets in turn during the spring and summer terms.

(*e*) FIELD INTRENCHING.

Instruction in the construction of shelter trenches was given to the companies of the battalion of Cadets, in turn, during the spring and summer terms, and practice in this branch was also carried out at a number of tactical and field exercises.

The intrenching equipment of Cadets, consisting of a portable spade and pick, worn suspended in leather cases from the field cartridge belt (adopted in the summer of 1898), has been thoroughly tested, and has proven to be a very satisfactory equipment.

(*f*) PACK-TRAIN SERVICE.

This instruction comprised the setting up of the aparejo (with willow strips and steel ribs), fitting the same to mules, and detailed instruction of each Cadet in putting on the aparejo, in loading cargo on the mule, and securing the same with diamond and other hitches, and methods of adjusting loads of different kinds; it was imparted to the first class during the summer period of instruction.

To qualify, each Cadet was required to start with aparejo and load on the ground, to put on the aparejo, and sling and lash the load within three minutes. The entire class qualified during the summer.

The pack train as organized for the use of Cadets consists of the quartermaster-sergeant, eight packers, and twelve pack mules.

An ammunition pack train for the supply and distribution of ammunition to troops in the firing line, consisting of eight pack mules with packs of eight boxes of ammunition under charge of the Cadet Quartermaster with eight ammunition carriers (provided with ammunition pouches), has been organized, and Cadets have received instruction and practice in this important branch at the tactical exercises.

(*g*) GYMNASTICS, SWIMMING, AND FENCING.

The course of physical training of Cadets was carried out in accordance with the prescribed programme, and the instruction imparted to the new Cadets was similar to that of last year and the year before.

(*h*) FIRE DRILLS.

Fire drills of the battalion, comprising the service of the steam fire engine, hook, ladder, and hose trucks, were held

during the month of December and continued until a sufficient degree of efficiency with the fire apparatus in case of fire was insured.

(*i*) FIELD EXERCISES AND PRACTICE MARCHES.

Field exercises and practice marches.—The culmination of the practical instruction of the summer occupied the last two weeks of the encampment; that is, from August 12 to 27. The field exercises embraced an extended application of the principles of attack and defense, of advance and rear guards, of outposts and reconnoissance, with an enemy imaginary, outlined or represented, or with opposing sides. The practice marches were generally combined with such exercises, and when made by mounted organizations stable duties (watering, grooming, feeding, and bedding down horses) were performed as required by the cavalry or light artillery drill regulations and customs of the service, upon the completion of the march.

The field exercises alternated with the practice marches, the former beginning at 7.10 a. m. and ending at or before 11 a. m., and the latter lasting from 7.10 a. m. till 2.30 or 3.30 p. m.

The uniform worn consisted of gray shirts, trousers, campaign hats, and leggings. Blanket rolls, canteens, and haversacks were carried on some of the practice marches, and in case of mounted organizations saddles were packed.

The rank and file of the cavalry, light and mountain artillery organizations, and pack train consisted entirely of members of the first class, and of the infantry organizations, of members of the third and fourth classes, with officers detailed from the first class according to roster.

The field exercises and practice marches were all carried out in accordance with general schemes, in which the conditions were made to resemble those in actual service, and were superintended by officers of the tactical department.

All of the exercises and marches, with the exception of the march to Peekskill, were carried out within 8 or 10 miles of the post, and were as follows:

August 4.—First class, organized as platoon of mountain artillery, and train loaded with reserve ammunition and camp equipage, marched to clearing on Eagle Valley road and went into camp; pack mules unloaded and cargo stored; picket line stretched; camp pitched, using shelter tents; drivers and packers sent to care for animals, cannoneers to care for their guns, etc.; details made for pitching wall tent, digging sinks, and kitchen fatigue; duration about four and one-half hours.

August 11.—First class, organized as platoon of mountain artillery and pack train, field exercise and camp duties; duration three hours and twenty minutes. Third and fourth classes, organized as two companies of infantry, carried out exercise in attack and defense of an advance guard and outpost, enemy represented; duration three hours and twenty minutes.

August 14.—First class, organized as troop of cavalry, acted as reconnoitering detachment and outpost; enemy outlined; duration three hours. Third and fourth classes, organized as two companies of infantry, exercise of advance guard and outpost, enemy outlined; duration three and one-half hours.

August 15.—First class, organized as light battery, went on practice march; enemy imaginary.

In this march the officers, noncommissioned officers, and drivers comprised members of the first class. The teams were harnessed and hitched by the latter.

The battery went into park on the return march, when the teams were unhitched and unharnessed, the picket line stretched, and camp made; picket and park guards and sentinels were posted, and fatigue details sent to procure wood, and in digging and screening sinks. After dinner the camp was struck and policed and sinks filled. Teams were harnessed and hitched, the carriages repacked, and the battery returned to the post, after which they performed evening stables; duration nine hours and thirty minutes.

The third and fourth classes, organized as two companies of infantry, went on practice march, and carried out exercise

as advance guard, reconnoissance and outpost, with opposing sides; duration seven hours.

August 17.—First class, organized as platoon of mountain artillery, went on practice march, established camp, etc.; duration seven hours. Third and fourth classes, organized as battalion of infantry, executed a field maneuver.

August 18.—First, third, and fourth classes, organized as a battalion of infantry, executed a field maneuver, enemy outlined; duration three hours and fifteen minutes.

August 20.—First class, as a troop of cavalry, executed a field maneuver; duration three hours and thirty minutes.

Third and fourth classes, organized as battalion of infantry, executed a field maneuver; duration two hours and fifteen minutes.

August 21 and 22.—The Corps of Cadets, organized as a battalion of infantry, troop of cavalry, platoon of mountain artillery, and pack train, in heavy marching order, marched from West Point at 8 a. m. on August 21 to the State camp of the New York National Guard, with troop of cavalry acting as advance guard. The command reached Peekskill at 11.30 a. m. and went into bivouac, establishing an outpost. A field exercise was carried out at 4 p. m., one company intrenching and defending a position which was attacked by the remaining three companies. The mounted organizations performed evening stable duty and furnished a stable guard. The command broke camp at 7 a. m. on August 22 and carried out a field maneuver on the return march. One company of infantry was sent in advance of the remainder of the command to take up and defend a position in the defile about 4 miles north of Peekskill. This was reconnoitered by the cavalry and then attacked by three companies of infantry in front, the cavalry and mountain artillery cooperating on the flanks. At the conclusion of the exercise the march was resumed, and the command reached West Point at 12.45 p. m.

August 23.—First class, as troop of cavalry, carried out a field exercise with enemy outlined; duration two hours. The third and fourth classes, organized as a battalion of

infantry, carried out a field exercise with enemy outlined; duration two hours.

August 25.—The first class, organized as a light battery, had target practice, the targets being placed at a distance of 2,150 yards and 2,250 yards from the battery. Eighty-six common shell with brass percussion fuses and 30 shrapnel with combination fuses were fired. All of the targets were repeatedly hit and a large percentage of the shots fell within the area that would have been occupied by a battery in action; duration eight hours. The third and fourth classes, organized as a battalion of infantry, executed a field maneuver; enemy outlined; duration three hours and forty-five minutes.

August 27.—The first class, organized as a troop of cavalry with packed saddles, went on practice march and performed reconnoitering and outpost duty; enemy outlined. Evening cavalry stable duty was performed on the return to the post; duration seven hours and forty minutes. The third and fourth classes, organized as a battalion of infantry, carried out an exercise of advance guard and outpost; enemy outlined.

Field sketches and reports were made by detailed members of the first class on all of the practice marches and several of the field exercises.

(2) *Theoretical.*—The course of theoretical instruction during the past year consisted of recitations in the United States infantry, cavalry, and light artillery drill regulations, regulations for mountain, coast, and siege artillery, and service of security and information during the academic year, and of lectures and practical demonstrations during the summer encampment, according to the following scheme:

(*a*) United States infantry drill regulations:

Fourth class.—As far as and including the school of the company (8 lessons).

Second class.—Remainder of drill regulations (11 lessons).

(*b*) United States light artillery drill regulations:

Fourth class.—School of the cannoneer (4 lessons).

Second class.—School of the battery and employment of artillery (11 lessons).

(*c*) Siege and coast artillery:

Fourth class.—School of the cannoneer (4 lessons).

(*d*) United States cavalry drill regulations:

First class.—School of the troop, squadron, regiment, employment of cavalry (12 lessons).

(*e*) Service of security and information:

Fourth class.—Advance and rear guards, outposts, reconnoissance, etc. (11 lessons).

The course of lectures was delivered to the first, third, and fourth classes on days unfit for practical work out-of-doors, as follows:

Day of lecture	Class.	Branch.	Subject.
First	1	Cavalry	Conformation, physiology, and anatomy of the horse.
	3	Coast artillery	Defense of coast of United States, general plan and subdivision; classification of harbors and general method of their defense.
	4	Artillery	Cannon, classes, guns, howitzers, mortars, machine and rapid-fire guns, nomenclature. General principles of gun construction.
Second	1	Light artillery	Open sights; kinds and use of fuses and projectiles.
	3	Infantry	Preparation of orders and reports.
	4	Infantry	Field intrenching.
Third	1	Mountain artillery.	Organization of a mountain battery. The latest models of mountain guns. Organization of a pack train. Capacity of pack mules.
	3	Coast artillery	Seacoast fortifications; carriages for heavy and rapid-fire guns.
	4	Artillery	Projectiles; shell, shrapnel, canister, cored shot, and construction and use of each. Material of which they are made and why.
Fourth	1	Cavalry	Simple diseases and injuries of horses and remedies.
	3	Infantry	Scales and map reading.
	4	Artillery	Modern guns; their development; materials and methods of manufacture. Different kinds of projectiles and their uses.
Fifth	1	Cavalry	Stable management.
	3	Artillery	Coast artillery range and position finding.
	4	Castrametation	Methods of laying out regular camp and bivouac; points in selecting camp.
Sixth	1	Light artillery	Artillery in field, ranging, marching, use of telescope sight.
	3	Coast artillery	Seacoast guns, construction, etc.
	4	Infantry	Firing regulations.
Seventh	1	Cavalry	Forage; care of horses in "the field;" the foot and shoeing.
	3	Infantry	Outposts.
	4	Artillery	Sighting and aiming; indirect pointing, etc.
Eighth	1	Cavalry	Seats and saddles.
	3	Light artillery	Use of sights; method of ranging.
	4	Infantry	Attack and defense.
Ninth	1	Cavalry	Age of horse; bits and bitting.
	3	Light artillery	Cannoneers on march and in camp; projectiles, fuses.
	4	Artillery	Carriages; definitions, descriptions, kinds, etc.

A course of lectures and practical demonstrations, followed by outdoor work on the following subjects, was held for the members of the first and third classes whose presence was not required at artillery drills daily except Saturdays from 7 to 8.30 a. m. during the second period of instruction, from July 5 to August 11:

Map reading and practical uses of maps; scales; sketches, reports, reconnoissance; practical work in reconnoissance and sketching; solution of minor tactical problems.

Manuals of instruction prepared in the department of tactics.—Drill regulations for mountain artillery, First Lieut. W. Lassiter, First Artillery.

Drill regulations for siege and coast artillery, First Lieut. W. Lassiter, First Artillery.

Service of security and information, First Lieut. E. Anderson, Seventh Cavalry.

Manual for making blanket rolls and for pitching shelter tents, First Lieut. W. Lassiter, First Artillery.

Manual for constructing shelter trenches, First Lieut. G. Blakely, Second Artillery.

Notes on horses and rules for polo, First Lieut. R. L. Howze, Sixth Cavalry.

The transfer of the elementary part of the infantry and artillery drill regulations from the second class course to that of the fourth class and the introduction of the study of security and information in the fourth class course went into effect during the past year, and now comprises a very satisfactory course for that class.

MILITARY ADMINISTRATION.

The course of lectures on company, post, and staff administration, as required by Regulations, United States Army, was delivered by assistant instructors of tactics to the half of the second class which did not attend drawing on Fridays from 2 to 3 p. m. between October 13 and March 2.

Nine lectures were delivered to each half of the class, which alternated in attendance, as follows:

First lecture.—Instruction of recruiting officers, and reports and returns pertaining to recruitment.

Second lecture.—Company organization; how to obtain and dispose of enlisted men.

Third lecture.—The ration.

Fourth lecture.—Company records, reports, and returns.

Fifth lecture.—Duties pertaining to the Quartermaster Department.

Sixth lecture.—Subsistence and Ordnance Departments.

Seventh lecture.—Property accountability.

Eighth lecture.—Money accountability.

Ninth lecture.—Duties of the post adjutant and post treasurer, and reports and returns pertaining thereto. The post exchange.

To facilitate this instruction, printed lectures in pamphlet form were issued to the class before the beginning of the course, and the particular lecture of the day was announced in advance for discussion, and Cadets were required to prepare themselves to be questioned.

This course was supplemented during the months of January and February by practical instruction given to the first class in the manner of making out the morning report and other papers and records pertaining to the company.

LECTURES ON CUSTOMS OF SERVICE AND MILITARY ETIQUETTE.

Four lectures—on the customs of the service, uniforms and equipments, horse equipments and field outfit, and military etiquette—were delivered to the first class during the month of February.

The members of the class were allowed to submit to the lecturers written questions on any point included in the subject-matter of these lectures one or two days before their delivery.

INSTRUCTION OF NEW CADETS.

The recruit instruction of new Cadets (80 in number) arriving in June began on June 23 and ended on July 3 (13 drill days), and consisted of the following subjects:

Physical exercises and setting-up drill; school of the

soldier and squad, extended-order drill, and ceremonies; preliminary target practice (sighting, position, and aiming drills, gallery practice); shelter-tent exercise; shelter-trench exercise.

Lectures were given to the new Cadets on the Academic Regulations, blue book, care of arms and equipment, firing regulations, and service of security and information.

The instruction of the new Cadets (83 in number), arriving on the 25th of July, began on July 31 and ended on August 14 (13 drill days), and comprised the same programme as that mentioned above.

The hours for daily instruction (except Sundays) were as follows:

Physical exercises, 7.15 to 8.15 a. m.; infantry drill, 8.45 to 9.45 a. m. and 4.30 to 5.30 p. m.; gallery practice, 10.30 to 11.15 a. m.: shelter-trench and shelter-tent exercise during some of the morning and afternoon drill hours; lectures, 12 to 12.45 p. m.

The instructors employed over new Cadets were specially selected members of the first and third classes and comprised careful, painstaking, patient, exemplary, and intelligent instructors, all of whom worked conscientiously and efficiently under the immediate supervision of the assistant instructor of tactics in charge and the master of the sword.

The progress made in this branch of instruction was most satisfactory and gratifying and can be principally attributed to the systematic and rational arrangement of the course, the excellent instructors employed, and the strict compliance of the latter with the correct methods laid down in the drill regulations for the conduct of instructors. The work was also greatly facilitated in the marchings by indicating the proper and uniform cadence for instructors and squads by the tap of the drum, regulated accurately by the metronome, by object lessons in the manual of arms and position of the soldier rather than by long and tiresome oral explanations; by carefully sifting out and advancing the men from one squad to another according to proficiency, and by placing the most backward men under the very best instructors.

MILITARY EFFICIENCY.

During the past year the members of the first class have been detailed in turn, according to roster, as officer of the day and guard, commandants of table, and inspectors of subdivision (weekly tours), and were marked for their performance of these duties.

At all drills, tactical and minor tactical exercises, and practice marches and field exercises they have in turn performed the duties of officers, and a record of marks was kept upon the efficiency shown, i. e., as based upon their knowledge and application of the drill regulations, manner of giving commands, proficiency in making corrections and explanations, and control of men exhibited.

During the year the first class men of each company have in turn exercised command of the company, making its inspections before and commanding it on parade, marching it to and from the mess hall, and being held responsible for its good order during his tour, the latter beginning at guard mounting and ending at guard mounting on the following day. They have also acted in turn as adjutant at guard mounting and as adjutant and quartermaster at parades. They were marked on the performance of these duties, and also on equitation and for their work on the target range.

Marks on soldierly deportment and discipline, based upon the character and degree of soldierly qualities of each Cadet of the first class, as determined by the estimate of the Commandant of Cadets and each of his assistants and upon delinquencies affecting soldierly conduct, have been recorded.

The marks on military efficiency and soldierly deportment and discipline were submitted periodically to the Superintendent.

From this it will be seen that each member of the first class has been given every possible opportunity during his last year at the Academy to exercise the command and many of the responsibilities and duties which devolve upon a commissioned officer of the junior grade in the Army, preparatory to graduation, and has been given credit for the

efficiency shown in the performance of duty and for his exhibition of those qualities which are essential in the make-up of an officer.

[Extracts from report of Commandant, Col. Charles G. Treat, August, 1901.]

The undersigned assumed command as Commandant of Cadets June 15, 1901. Up to that time the regular drill schedule, as set forth in the annual report of the Commandant of Cadets for 1900, had been carried out. The regular drill season began June 15. A practice march to Lake Mohegan was made June 17, 1901. It was a march of concentration on the Peekskill waterworks, where contact was made with the Seventh Regiment, National Guard, State of New York, en route to Lake Mohegan. The command returned the following day. All duties were performed by Cadets, including grooming, watering, and feeding the animals. Very satisfactory road sketches were made, and all details of advance and rear guard and other requirements for security and information were strictly carried out.

* * * * * * *

Cavalry.—The quality of horsemanship and class of riding shown is good, though not entirely satisfactory. Efforts are being made to improve the bitting and gaiting of the horses by using the four-rein bridle, and either a bit and bridoon or the regulation curb bit with second-rein ring at mouthpiece. This is producing a marked improvement in the gaits of the horses, their tractability, and manners, the injury and pain caused by the heavy, inexperienced, and numerous different hands on the curb alone being somewhat abated by the almost exclusive use of the snaffle rein. The Quartermaster-General has furnished 32 ponies that have been carefully trained and schooled and will be used in conjunction with cavalry and riding instruction to teach Cadets how to ride the pad saddle, ride cross country, and those showing superiority will be given practice and instruction in polo. The Ordnance Department has furnished 20 new and first-class pad saddles, with bridles, cavessons, and breast straps complete. These, with the 10 others already on hand, make 30 complete

outfits. To school new horses in taking obstacles and perfect old ones a jumping chute—an oval 150 feet by 75 feet, 12-foot track, fences 6 feet high, with a stone wall, water jump, hedge, and post and rail as obstacles—was constructed and has been in successful operation during the summer. The horses are first turned in without a bridle or rider and sent around as many times and as many days as necessary to have them jump easily, gracefully, and without hesitation. Cadets are then put in the saddle and instructed as to proper position of the body in jumping, and are encouraged to hold on by the saddle, mane, or straps around the horse's neck—anything to make them feel secure and increase their confidence. The horses, still without bridles, are then turned loose and sent over the obstacles. In this way the horse jumps naturally, the Cadet can not punish the horse by supporting himself on the reins, and he is gradually taught to ride with his legs alone and only to guide and steady by the reins. Both kinds of saddles are used in this instruction, with and without stirrups, and also bareback. The principle governing this instruction is, first, to teach the horse to jump; then let the horse be free to teach the man, taking every precaution to maintain and increase the rider's confidence. On the flat north of the post a simple steeple-chase course has been laid out, containing the following obstacles: Virginia rail fence, hedge, stone wall, in-and-out jump, board fence, post and rail, and water jump. The course is about half a mile long, and the turns are short enough to make it necessary to ride with the horse well in hand and avoid forming the habit of rushing at obstacles.

The summer course in equitation included instruction in the use of the longe and the proper application of the aids. This instruction was given to members of the first and third classes left over after providing for all details at the other drills taking place at the same hour—7 to 8.30 a. m. By this means 8 to 10 first-class men and 16 to 20 third-class men were given daily instruction. This was particularly advantageous in the latter case, affording an opportunity to somewhat accustom third-class men to the horse before getting

THE HUDSON RIVER AT WEST POINT.

The B[illegible] R[illegible] from [illegible] opposite West Point.

into the riding hall. The class is so large that the hall will scarcely accommodate one-half of them, as is customary, and the time allowed to each man will be diminished one-third and possibly one-half. This is a serious question, and it is hoped that a new division of time may be made to somewhat remedy the condition.

A regular course of lectures, covering practical duties in the several arms of the service, has been arranged for and given. Lectures also covering the subjects of military administration, customs of the service, and military etiquette, military efficiency, instruction of recruits and new Cadets, together with all other practical and theoretical subjects, have been discussed and lectured on by the various officers on duty in the department of tactics. The subject of discipline, military conduct, and general deportment has been presented to all Cadets by discussions and lectures by the Commandant of Cadets in person.

J.

HISTORICAL SKETCH OF THE DEPARTMENT OF PRACTICAL MILITARY ENGINEERING, 1896.

[The following report on the department of practical military engineering was prepared in 1896 by Captain James Lusk, Corps of Engineers, U. S. A., the then head of the department.]

During the early history of the Academy, and up to about 1842, instruction in practical military engineering appears to have been committed to the department of engineering and the science of war, under the title of "actual (or practical) operations on the ground." (See United States Army Regulations, 1821, art. 78, par. 40; United States Army Regulations, 1825, par. 1349; Regulations United States Military Academy, 1839, pars. 34, 35.)

In August, 1842, Capt. A. J. Swift, Corps of Engineers, was assigned to duty as instructor in practical military engineering, and his name is so borne in the Annual Register for 1843. About one year later the head of the department became a member of the academic board. (See Post Orders, No. 22, of 1844.)

From 1844 onward the department has existed without interruption, except during part of the war of the rebellion, when it was probably merged in a greater or less degree in the department of engineering and the science of war.

A detailed programme of instruction first appears in the Academic Regulations in 1853. That programme was somewhat extended in 1857, and again in 1867 and 1892.

Instruction in this branch was confined to the first class until 1867, when it was extended to include the second class. In 1891 it was still further extended to include the third class.

The regulations of 1857 prescribed that in making up the general merit roll of the first class practical military engineering should have a relative value of one-half (50), but the provision does not appear to have been carried into effect. In 1891 it was ordered, upon the recommendation of the academic board, that in making up the merit roll of the first class a weight of 45 should be assigned. This provision has been carried into effect in the merit rolls of the first class in 1892 and succeeding years to this time.

In 1863 Capt. S. T. Cushing, acting signal officer, was sent to West Point for the purpose of introducing "instruction in military signaling and telegraphy as a part of the regular course of instruction for Cadets." Under this order Captain Cushing was on duty at West Point from July 24, 1863, to January 24, 1864, but no post order appears to have been issued assigning him to duty.

Upon the recommendation of the academic board, instruction in military signaling and telegraphy was added to the course in practical military engineering in October, 1867.

Statement of the Present Course, etc.

During July and August of each year the first and third classes are under instruction; in October and April, the first and second classes; and during the first week in May, the first class alone.

The scope of the course as at present taught can probably

be best outlined by the following programme of instruction for the year July 1, 1895, to June 30, 1896:

FIRST CLASS.

School of the boat.
Making knots and lashings.
Bridge by successive pontoons.
Assembling and launching canvas pontoons.
Trestle bridge on land.
Double lock spar bridge.
Abatis.
Fascine.
Hurdle.
Hoop-iron gabion.
Brush gabion.
Gabion revetment.
Fascine revetment.
Sand-bag revetment.
Barrel revetment.
Wire entanglement.
Simple trench (one-sixth scale).
Simple trench (full scale).
Flying trench (one-sixth scale).
Flying trench (full scale).
Shelter trenches, various types.
Russian gun pit.
Epaulment for breech-loading gun.
Epaulment for muzzle-loading gun.
Full sap.
Planting vertical palisading.
Planting inclined palisading.
Gun platform.
Mortar platform.
Profiling.
Signaling with flag.
Signaling with heliograph.
Signaling with telegraph.
Use of reconnoissance instruments.
Mounted reconnoissance.
Utilization of ground and stone-walls as a means of defense.
Use of explosives.

SECOND CLASS.

Bridge by successive pontoons.
Gabion revetment.
Sand-bag revetment.
Barrel revetment.
Wire entanglement.
Making palisading.
Planting vertical palisading.
Planting inclined palisading.
Planting fraises in scarp.
Planting fraises in counterscarp.
Gun platform.
Mortar platform.
Signaling with flag.
Signaling with telegraph.

THIRD CLASS.

School of the boat.
Bridge by successive pontoons.
Assembling and launching canvas pontoons.
Trestle bridge on land.
Fascine revetment.
Gabion revetment.
Shelter trenches, various types.
Signaling with flag.
Signaling with heliograph.
Utilization of ground and stone walls as a means of defense.
Use of explosives.

The text-books employed are solely for reference. The list includes Ernst's Manual of Military Engineering, the Woolwich and Chatham text-books on the same subject, the United States Bridge Equipage and Drill, and various other publications bearing upon the subjects taught. The actual instruction to the Cadets in each subject is given out mainly in the form of printed cards containing concise descriptions and explanations of the work to be executed. The cards are supplemented by hectographed plans and sections and by oral explanations.

The number of drills possible each season depends to a certain extent upon the weather and upon interruptions in the way of musters, reviews, military funerals, etc., requiring the attendance of all the Cadets.

That these causes combine to lessen to a large extent the quantity of instruction possible the following comparison will show:

	October, 1895	April, 1896	July and August 1896	Total.
Drills possible	18	17	47	82
Lost, bad weather	1	2	7	10
Lost, military funerals	1	1		2
Lost, musters	1	1		2
Actual drills	15	13	41	69
Drills lost	3	4	6	13
Percentage lost	16.7	23.5	12.8	15.9

The time devoted to instruction during the year in question was as follows:

	Hours.
First class:	
October, 95, 15 drills, 1 hour each	15
April, 1896, 13 drills, 1 hour each	13
July and August, 1896, 41 drills, 1½ hours each	61½
Total	89½
Second class:	
October, 1895, 15 drills, 1 hour each	15
April, 1896, 13 drills, 1 hour each	13
Total	28
Third class:	
July and August, 1896, 41 drills, 1½ hours each	61½

The time lost by the individual Cadets is much greater than that due to the number of lost drills. This arises from the absence of Cadets who are sick, on old and new guards (during the encampment), or detailed for other duties. Excepting the case of the first class in July and August, the attendance is by half classes on alternate days. During the first class year of the class of 1896 the maximum attendance by any member of the class was 56 drills out of a total possible of 72. The average attendance was about 46 drills out of 72.

In May each Cadet of the first class is required to attend one full day at mounted reconnoissance. This exercise involves about six and one-half hours of steady work of observing, recording notes, making a road sketch and a finished map in ink, all in the field.

No stated lectures are given in this course, but as much oral instruction is imparted as time allows. There is no distinct division of the course into advance and review, but, for the sake of proficiency, certain parts of the course are repeated to a limited extent.

3. Organization of Department, etc.

Since the expansion of the course in 1891, and until quite recently, the number of instructors has been three—the instructor of practical military engineering and two assistants. As a rule, these three officers have all attended at every drill and have found themselves fully occupied. When the classes are large the summer drills tax the energies of the officers to the utmost.

There is no strict division of duties, the officers being assigned to different lines of instruction at different times, thus having under their observation all the Cadets of the different classes. This arrangement is believed to bring about the fairest possible results in marking and grading the classes.

4. Description of a Drill.

When a class or half class is reported to the instructor, the details are rapidly made by roster for the different kinds of work to be done. The squads are promptly marched to the working points, where instruction cards, rough drawings,

and implements are provided. When deemed necessary, oral instruction and explanation are given both before and after the squads begin working. When, in the judgment of the officer in charge, enough work has been done, the members of the squad are questioned sufficiently to ascertain their understanding of the practical features involved. The marking is done upon the method of working, the progress made, and the understanding shown of the subject. In signaling and telegraphy the marking is done upon the recorded messages turned in by each Cadet.

5. Weekly Class Reports, etc.

These are made and the marks exhibited in the usual manner, the classes being divided into sections merely for the sake of convenience in marking. As a rule, transfers are not made. In general, first class men are detailed as chiefs of the working parties of the second and third classes, and are required to mark the members of their parties. The marks so given are recorded, but do not affect the final standing in the department, which is determined solely from the marks of the first class year. The members of the first class are marked by the officers alone.

6. Examinations.

These are entirely practical, and have thus far been conducted in Fort Clinton, and with one exception (that of May, 1892) they have taken place during the period of the annual examination. As there is no room suitable for indoor examination, a postponement will undoubtedly be necessary in case of inclement weather. The mark for each day's drill having a weight of unity, the examination mark has thus far been given a weight of 3, and that for mounted reconnoissance a weight of 5. The usual standard of proficiency is required.

Review of course, 1896.

The instruction now given is believed to be as full and thorough as the time allowed will permit. Several defects exist, the most important being as follows:

1. *Lost time.*—As stated in detail above, the time lost from instruction due to drills missed from various causes and to

the absence of Cadets from drills makes up a large total. To partially obviate the evil requires a wearisome repetition of certain drills. There seems to be no remedy for this state of affairs without encroaching upon the practical work of other departments, which is not recommended.

2. *The short terms of service allowed the assistant instructors and the irregularity of their tours of duty.*—These officers are not allowed as long terms of service at the Academy as those in other departments, and are assigned and relieved without reference to the academic year. The work of instruction of the department begins on July 5 and ends with the conclusion of the next annual examination. It is therefore desirable that changes of assistant instructors be made between the end of the annual examination and the succeeding 1st day of July. It is also much to be wished that these officers should have tours of duty at the Academy of not less than three years.

MEMORANDA CONCERNING DEPARTMENT OF PRACTICAL MILITARY ENGINEERING DURING THE WAR OF THE REBELLION.[a]

Engineer Company A, formed for service in war with Mexico, returned to West Point June 22, 1848, and assisted in instruction of cadets until January 18, 1861, when, under command of Lieut. J. C. Duane, instructor of practical military engineering, it left West Point for Washington, D. C.

On September 30, 1861, the company returned with Capt. J. C. Duane and Lieuts. G. Weitzel and John A. Tardy, jr., and remained at West Point till October 30, 1861, when the company and officers again left to join the Army of the Potomac.

A small detachment was left behind under command of Lieut. William P. Craighill, then in the department of civil and military engineering, and remained at West Point under his orders (with a temporary absence June 21 to October 25, 1862) till June 18, 1863. From June 18, 1863, to August 19, 1863, the detachment was commanded by Lieut. J. A. Smith, then temporarily by several other officers in succession till September 10, 1863, when Capt. Miles D. McAlester joined

[a] By Captain Lusk.

as instructor of practical military engineering and commander of detachment.

During the interval between October 30, 1861, and September 10, 1863, the department of practical military engineering was probably merged in the department of civil and military engineering. The same may be true for the interval from January 18, 1861, to September 30, 1861.

The detachment of engineers above referred to was kept at West Point in department of practical military engineering till the return of A Company in 1865.

A Company remained at West Point till September 1, 1867, when a new detachment was formed and left behind till arrival of E Company on March 3, 1871.

Instructors, department of practical military engineering, signaling, and telegraphy.

Instructor.	Assigned.	Relieved.	Remarks.
Alex J. Swift, captain, engineers	Aug. 1842	Sept. 12, 1846	On duty at West Point June 30, 1841, to Nov. 15, 1841, duty not known, but probably organizing department of practical engineering.
Fred. A. Smith, captain, engineers	Sept. 12, 1846	Mar. 25, 1848	
George W. Cullum, captain, engineers	Mar. 25, 1848	May 19, 1851	
Alex. H. Bowman, captain, engineers	May 19, 1851	June 1, 1852	
George W. Cullum, captain, engineers	June 1, 1852	Jan. 1, 1855	
John G. Barnard, captain, engineers	Mar. 2, 1855	Sept. 8, 1856	Superintendent U. S. Military Academy.
Andrew J. Donelson, first lieutenant, engineers	Sept. 8, 1856	Oct. 15, 1858	
James C. Duane, first lieutenant, engineers	Oct. 16, 1858 Sept. 30, 1861	Jan. 18, 1861 Oct. 30, 1861	
Miles D. McAlester, captain, engineers	Sept. 10, 1863	June 22, 1864	
William P. Craighill, captain, engineers	June 22, 1864	Aug. 31, 1864	
George H. Mendell, captain, engineers	Sept. 21, 1864	July 3, 1865	
Henry M. Robert, captain, engineers	Aug. 31, 1865	Aug. 31, 1867	
Peter S. Michie, captain, engineers	Aug. 31, 1867	Mar. 8, 1871	Relieved Mar. 8, 1871, on account of having been appointed professor of philosophy, to date from Feb. 14, 1871.
Oswald H. Ernst, captain, engineers	Aug. 1, 1871	Aug. 28, 1878	
Charles W. Raymond, captain, engineers	Aug. 28, 1878	Aug. 28, 1881	
William S. Stanton, captain, engineers	Aug. 28, 1881	Aug. 28, 1885	
Francis V. Greene, captain, engineers	Aug. 28, 1885	Jan. 12, 1886	
Philip M. Price, captain, engineers	Jan. 15, 1886	Jan. 4, 1889	
George McC. Derby, captain, engineers	Jan. 4, 1889	Mar. 4, 1893	
James L. Lusk, captain, engineers	Mar. 31, 1893		
G. W. Goethals, captain, engineers			
James L. Lusk, captain, engineers	Aug. 22, 1900		

In 1897 instruction in this department was carried on as in 1896. In 1898 and 1899 it was considerably interfered with by the necessities of the Spanish war and the consequent transfer of troops to and from West Point. In 1900 a departure was made in the method of instructing the third class, this class not being combined with the first class, but instructed separately in practical surveying. In 1901 the instruction was given very much as in 1900, though the lack of instructors was emphasized by the head of the department, Captain Kuhn. In the revision of the curriculum, which took place in the spring of 1902, the subject of surveying was eliminated from the mathematical department and transferred to the department of practical engineering. This change made such an important improvement in this particular instruction that full extracts from the report of Captain Kuhn are appended.

[Extract from the report of Captain Kuhn on the practical surveying for the season of 1902.]

The periods of instruction, as fixed by orders, extended from June 23 to July 9, inclusive, daily except Sundays, from 7 a. m. to 12.32 p. m., and from July 10 to August 15, inclusive, except Sundays, from 8.30 a. m. to 12.30 p. m., one-third of the class attending daily, or an average attendance of 32 men. The prescribed schedule afforded a maximum of 40 drill days, of which 3 were lost by bad weather, leaving 37 actual drill days. The average number of attendances of each Cadet was 10. During the first period of instruction four instructors were available, but during the second period one instructor had to leave at 10.30 a. m. to attend to the first class.

METHOD OF INSTRUCTION.

Instruction was entirely practical and at no time were Cadets requested or advised to do any reading. As theoretical instruction in the department of mathematics had been dropped, the class was entirely ignorant of the subject at the outset, and short lectures were given daily at first, explaining the construction, adjustments, and use of the instruments. In these lectures blackboard diagrams and the instruments themselves were freely used. Immediately after the lectures the instruments were placed in the hands of the Cadets and definite problems assigned, which each man was required to perform himself.

Lectures were dispensed with as soon as fundamental principles were understood, and the Cadets were at once divided up into squads and given definite tasks with the instruments. During the entire course of

instruction questions were constantly put to the Cadets by the instructors to test their understanding of the instruments and explanations constantly made to remove all difficulties.

GROUND COVERED.

Instruction was limited to the surveyor's transit and wye level and to the operations usually performed with these instruments. The fundamental principles of construction were made clear, adjustments explained and made, and, finally, practical work with the instruments themselves undertaken. The practical work included such exercises as rod reading, profile leveling, differential leveling, and cross-section leveling with the wye level; angle reading, traversing lines, stadia surveying, and compass reading with the transit. Measurements of lines by chain and tape were involved in many of the exercises and were taught in connection with them.

CONCLUSIONS.

In my judgment the results of the season's work were most satisfactory and fully justify the change in method of instruction. I am convinced that no class at the Academy has ever acquired such a real practical working knowledge of surveying instruments as has the recent third class, and I believe that a majority of the class are as fully qualified in this particular as are the average graduates from technical schools with the degree of civil engineer.

K.

HISTORICAL SKETCH OF THE DEPARTMENT OF ORDNANCE AND GUNNERY, UNITED STATES MILITARY ACADEMY.

[The following sketch of the ordnance department, with a few omissions, is that prepared by Captain Bruff in 1896 for insertion in the report of the Superintendent of that year. Since 1896 the course of study in ordnance and gunnery has been added to and modified to keep pace with the many changes in that branch of science.

Captain Bruff, who had been the head of the department since 1891, was succeeded in August, 1900, by Capt. F. E. Hobbs. The latter has introduced, to a much greater extent than formerly prevailed, explanation and oral instruction by lecture, with lantern-slide illustrations of guns in action, the effects of fire, etc. The department is now supplied with models of very nearly all the service guns, carriages, etc. There has also been added to the equipment of this department the latest service 7-inch mortars, typical rapid-fire guns of various kinds, azimuth instruments, range finders, and other modern ordnance appliances. It may

be stated that the equipment is now such that Cadets can see practically all the modern appliances either in exact models or in full-sized service pieces.]

This department is a gradual growth from the department of artillery. In the earlier stages of development the instruction was mostly practical, and little is known of it. General Cullum gives in his account of the early history of West Point the following under the head of "Instruction:" * * * "The first principles of artillery were taught with the drill of field pieces, target practice, and a little laboratory duty. Artillery was little studied, only definitions from Scheele's Artillery were learned, practical pyrotechny and preparation of fixed ammunition taught, and the use of field pieces and mortars in drills and at target practice."

The department of artillery first appears upon the records in 1817, the first instructor being George W. Gardiner, second lieutenant, Corps of Artillery, whose tour of duty extended from September 15, 1817, to February 1, 1820. During part of this time he was also Commandant of Cadets.

Paragraph 7, Academic Regulations of 1821, prescribes: "There shall be detailed a captain or field officer and attached to the Academy as instructor of tactics; and the captain or commandant of artillery to be stationed at West Point shall perform the duty of instructor of artillery. * * *"

By paragraph 9 of the same regulations the instructor of artillery is constituted a member of the academic board.

In accordance with the above provisions, the instructor of artillery, Capt. Fabius Whiting, Corps of Artillery, appears as a member of the academic board for the first time June 30, 1821. The same provisions as to detail of instructor of artillery appear in the regulations of 1839 and also in those of 1853, except that "a captain or lieutenant may be detailed as instructor of artillery."

The department of artillery continued till 1857, and a list of the instructors in that department is given below, with the dates of their services:

List of instructors of artillery.

Name	Rank and regiment	From	To
George W. Gardiner	Second lieutenant, Corps of Artillery	Sept. [illegible] 1817	Feb. 1, 18[illegible]
Levans Whiting	Captain, Corps of Artillery	Aug. 18, 18[illegible]	Aug. [illegible], 1821
Z. I. D. Kinsley	Second lieutenant, Third Artillery	Dec. 18, 1823	Dec. 1, 1828
Robert Anderson	First lieutenant, Third Artillery	Dec. [illegible], 1828	Nov. 6, 1837
Minor Knowlton	First lieutenant, First Artillery	Nov. [illegible], 1837	July 1, 1844
E. D. Keyes	Captain, Third Artillery	July 25, 1844	Dec. 24, 1848
William H. Shover	Captain, Third Artillery, and brevet major, U. S. A.	Dec. 24, 1848	Sept. [illegible], 1850
George H. Thomas	First lieutenant, Third Artillery, and brevet major U. S. A.	Apr. 2, 1851	May 1, 1854
Fitz John Porter	First lieutenant, Fourth Artillery, and brevet major U. S. A.	May 1, 1854	Sept. 11, 1855
Henry F. Clarke	First lieutenant, Second Artillery, and brevet captain, U. S. A.	Sept. 11, 1855	Aug. 6, 1859

In 1857 the department of ordnance and gunnery was organized pursuant to the following resolution of the Academic Board of December 5, 1856:

6. That the portion of the present course of artillery which comprises the science of gunnery, and what is known in our service as ordnance, be disconnected from that which relates to tactics merely, and be made the subject of a separate department, and that the additional time necessary for the development and improvement of this department be taken from that now given to practical engineering in October.

And on December 9, 1856, the course was finally arranged as follows: "Ordnance and gunnery from 11 a. m. to 1 p. m. from October 1 to end of the first week in March, alternating every other week day with cavalry tactics during October and two weeks in November, and with riding during the remainder of the term."

Paragraph 5 of the Academic Regulations of 1857 provides for the detail of the instructor of ordnance and gunnery, and by paragraph 9, same regulations, he is constituted a member of the Academic Board.

Under these provisions Capt. James G. Benton, Ordnance Department, was assigned to duty at West Point and became the first instructor of ordnance and gunnery. A list of the

instructors in this department is given below with dates of service:

List of instructors of ordnance and gunnery.

Name	Rank and department.	From—	To—
James G. Benton	Captain, Ordnance Department	Feb. 27, 1857	Apr. 26, 1861
Stephen V. Benét	First lieutenant, Ordnance Department	Apr. 26, 1861	Feb. 1, 1864
Thomas J. Treadwell	Captain, Ordnance Department	Feb. 11, 1864	Sept 13, 1864
George T. Balch	....do	Sept. 22, 1864	July 12, 1865
Alfred Mordecai	....do	July 12, 1865	Aug. 2, 1869
Theo. Edson	Major, Ordnance Department	Aug 2, 1869	Nov 17, 1870
Thomas C. Bradford	Captain, Ordnance Department	Jan 1, 1871	Jan 12, 1872
Stephen C. Lyford	....do	Jan. 30, 1872	June 28, 1872
John R. McGinness	.....do	July 25, 1872	Aug. 30, 1874
Alfred Mordecai	do	Aug. 30, 1874	Aug. 28, 1881
Clifton Comly	Major, Ordnance Department	Aug. 28, 1881	Aug. 28, 1886
Henry Metcalfe	Captain, Ordnance Department	Aug. 28, 1886	Aug 8, 1891
L. L. Bruff	.....do	Aug. 17, 1891	Aug 14, 1900

HISTORY OF COURSE.

The early history of the course from the beginning of the Academy up to 1812 has already been given. From 1812 to 1817 General Cullum states: "tactics of infantry and artillery were Captain Partridge's delight, and were well taught, but were necessarily limited, owing to the small number of Cadets to exercise and the few pieces of ordnance for drill or target practice."

From this it appears that there was very little theoretical instruction in ordnance proper, but that most of it was practical, belonging rather to the department of tactics than to that of ordnance.

In January, 1820, a committee of the Academic Board, consisting of Professors Mansfield and Crozet and Assistant Professor Douglas, was appointed to draw up a revised code of the course of studies and rules for classification. Under the subject of artillery and military science they state that this course shall consist of "the knowledge and use of the various kinds of ordnance and military projectiles, principles of gunnery, experiments on the strength of powder, and calculation of the initial velocity of balls."

Between this date and 1826 the instruction in the scientific part of the course was transferred to the department of

engineering, though the date of transfer is not fixed. It was transferred back to the department of artillery by resolution of the Academic Board of June 26, 1826.

In 1839–40 a programme of studies was drawn up by direction of the chief engineer, and the course in artillery was as follows:

Pyrotechny.—Under this head the instruction is both theoretical and practical and extends to the making of slow match, quick match, portfires, priming tubes, cannon cartridges, musket, rifle, and pistol cartridges, canister shot, grape shot, strap shot, leaden balls, fuses, rock fire, light balls, fireballs, incendiary balls, the mousse, sulphur matches, thundering barrels, carcasses, and signal rockets; to the loading of bombs, howitzers, and grenades, and putting up ammunition for transportation. The manner of making petards, powder sacks, smoke balls, suffocating balls, alarm signals, congreve rockets, and parachute rockets is studied but not applied to practice.

Artillery tactics.—Under this head the organization of a field battery and of the company of artillerists required for its service. The school of the gunner, school of the piece, and school of the battery are learned theoretically and practically. The evolutions of the batteries are studied, but not practiced in the field.

Gunnery.—The theory of gunnery is studied and applied to practice with guns, howitzers, and mortars.

Manufacture of gunpowder, percussion powder, cannon, and projectiles.—Under this head the studies include the preparation of materials for gunpowder; the manufacture and inspection of gunpowder; the proof of gunpowder; the proof of gunpowder by the mortar eprouvette, spring eprouvette, ballistic pendulum, cannon pendulum, and rotary machine; the storage and preservation of gunpowder; the restoration of damaged gunpowder; the inflammation and properties of gunpowder; a description of the principal of the different fulminating powders; the manufacture of percussion caps and wafers; the preparation of metals used in the fabrication of arms; the manufacture of cannon of cast iron, wrought iron, and bronze; the inspection and proof of iron guns, howitzers, and mortars; the inspection and proof of guns, howitzers, and mortars of bronze; the preservation of cannon; the manufacture, inspection, and proof of shot and shell.

General subject of artillery.—Under this head are included the different kinds of guns, howitzers, and mortars; a description of the different kinds of hollow projectiles and of the manner of filling and preserving them; the description and nomenclature of gun carriages, caissons, etc., with an explanation of their forms; propositions with respect to strength and ease of draft; the manner of spiking and unspiking cannon; the manner of repairing and destroying the material of artillery; the theory

of firing; the manner of determining initial velocities; the effects of recoil; the aiming of guns, howitzers, mortars, and stone mortars; the firing of grapeshot, congreve rockets, and grenades; the throwing of hand grenades; the different modes of firing; the manner of firing by night; the causes of deviation in firing; the effect of rifling in correcting the inaccuracy of small arms; the effects produced by balls, howitzers, bombs, grapeshot, etc.; the composition of siege trains; the construction of siege batteries; the manner of battering in breach and counter battering; the construction of coast batteries and the defense of coasts.

Text books.—Instruction Théorique et Pratique, par Thiroux, upon the general subject of artillery; Exercise and Instruction of Field Artillery, a system prepared by a board of officers at Washington in 1826, by order of the Secretary of War, upon the subject of artillery tactics.

The remaining parts of the course are taught from notes prepared and lithographed at the Military Academy.

The course, according to the Regulations of 1853, is as follows:

Par. 31. *Artillery.*—Nomenclature and description of the different kinds and parts of artillery—gun carriages, caissons, and other artillery carriages—of artillerists' implements, and military projectiles; exercise of the fieldpiece and of mortars, howitzers, siege, garrison, and seacoast guns; maneuvers of a field battery of artillery; mechanical maneuvers.

Gunnery.—Theory of gunnery; target practice with the gun, howitzer, and mortar.

Pyrotechny.—Making of all kinds of musket, rifle, pistol, cannon, and howitzer cartridges; preparation of strap, grape, and canister shot, priming tubes, fuses, slow and quick match, portfire, rockets, carcasses, fireballs, light balls, and incendiary composition; loading shells, shrapnel shot, and grenades, casting musket balls; putting up stores for transportation; loading caissons, and the manner of proving powder.

Par. 50. *Manner of giving instruction in artillery.*—Artillery tactics shall be taught according to the most approved system. The instructor will be assisted in the drill by the cadets best qualified, acting as commissioned and noncommissioned officers. Select passages from the best works in the different subjects of the course shall be studied and recited. A course of practice shall be connected with the study of gunnery.

The cadets shall be taught in the laboratory its various duties, and shall by practice acquire facility and correctness in performing them.

In 1857 the course was as follows:

Par. 27. *Ordnance and science of gunnery.*—Nomenclature and description of the different kinds and parts of artillery—gun carriages, caissons,

and other artillery carriages—of artillerists' implements, and military projectiles.

Gunnery.—Theory of gunnery.

Pyrotechny.—Making musket, rifle, pistol, cannon, and howitzer cartridges; preparation of strap, grape, and canister shot, priming tubes, fuses, slow and quick match, portfire, rockets, carcasses, fireballs, light balls, and incendiary composition; loading shells, shrapnel shot, and grenades; making musket balls; putting up stores for transportation; loading caissons; and the manner of proving powder, shot, and shells, inspecting guns, etc.

Par. 53. *Ordnance and the science of gunnery and laboratory duty.*—For instruction in this branch the first class shall be divided into sections when commencing the subject according to general merit, and after the January examination according to merit in this study.

Practical instruction in the duties of the laboratory shall be given to the first class during a part of the period of the encampment, and to the fifth class between the 1st of April and the 15th of May.

In this year, as already noted, the department of ordnance and gunnery had been organized, and hence the technical part of the course had been transferred to the department of tactics.

The course in 1873 was as follows:

Par. 32. *Ordnance and gunnery.*—This course will comprise:

Ordnance.—(1) The theory and preparation of gunpowder, cannon, artillery carriages, projectiles, implements, machines, small arms, ammunition, and military fireworks. (2) Practical instruction in making musket, rifle, pistol, cannon, and howitzer cartridges; preparation of strap, grape, and canister shot, fuses, slow and quick match, portfire, signal rockets, carcasses, fireballs, light balls, and incendiary composition; loading shells, shrapnel shot, and grenades; putting up stores for transportation; loading caissons; in determining pressure on the bore of a gun; in determining the initial velocity of projectiles; in the manner of proving powder, and, when circumstances will admit of it, the operation of casting cannon, solid and hollow, casting of projectiles, and the usual method of testing gun metals will be witnessed.

Gunnery.—Embracing the study of the movements of projectiles; the theory of pointing firearms; the different kinds of fires and their effect; the art of breaching, and the composition of batteries.

Par. 59. *Ordnance and gunnery and laboratory duty.*—For instruction in this branch the first class shall be divided into sections in September according to general merit, and after January examination according to merit in ordnance and gunnery.

Practical instruction in the duties of the laboratory shall be given to the first class during a part of the period of the encampment and to the third class at such times as the Superintendent may direct.

The course in 1883 was as follows:

Par. 32. *Ordnance and gunnery.*—This course will comprise—

1. The theoretical course of ordnance and gunnery, as follows: Ordnance—The theory and preparation of explosives, projectiles, cannon metals, cannon and portable arms, artillery carriages, harness, and machines. Gunnery—The theory of the motion of projectiles within and without the piece, and their effects. The use of range finders.

2. The practical course will comprise instruction in the duties of the arsenal and experiments in gunnery. When circumstances will admit of it, the operation of fabricating ordnance material will be witnessed.

Par. 39. *Ordnance and gunnery.*—Two to 4 every other week day, Saturdays excepted, alternating with law. The month of April to be devoted to the practical part of the course, explanation of instruments, models, etc.

Par. 60. *Ordnance and gunnery and laboratory duty.*—For instruction in this branch the first class shall be divided into sections in September according to general merit, and after the January examination according to merit in ordnance and gunnery.

Practical instruction as prescribed in paragraph 32 of these regulations shall be given to the first class during the month of April, or at such times as the Superintendent may direct.

The following list of text-books in use in the department has been obtained from the best available sources, and is very imperfect, especially at the beginning of the history of the department:

Text-books in artillery.—Sheele's Treatise on Artillery.

1841. Anderson's United States Artillery Tactics; Kinsley's Pyrotechny; Thiroux's Instruction Théorique et Pratique d'Artillerie; Knowlton's Notes on Gunpowder, Percussion Powder, Cannon, and Projectiles.

1842. United States Artillery Tactics; Kinsley's Pyrotechny; Thiroux's Instruction Théorique et Pratique d'Artillerie; Knowlton's Notes on Gunpowder, Percussion Powder, Cannon, and Projectiles.

1850. Tactics for Garrison, Siege, and Field Artillery; Kinsley's Pyrotechny; Thiroux's Instruction Théorique et Pratique d'Artillerie; Knowlton's Notes on Gunpowder,

Cannon, and Projectiles; Mordecai's Experiments on Gunpowder, by means of the Gun and Ballastic Pendulum.

Text-books in ordnance and gunnery.—1859. Thiroux's Instruction Théorique et Pratique d'Artillerie; Ordnance Manual; Mordecai's Experiments on Gunpowder; Notes on Fabrication of Cannon and Projectiles.

1863 and 1864. Benton's Course of Ordnance and Gunnery.

1865 to 1870. Benton's Ordnance and Gunnery.

1870 to 1886. Benton's Ordnance and Gunnery; Mordecai's Notes and Pamphlets; Bruff's Exterior Ballistics.

1886 to 1896. Metcalfe's Ordnance and Gunnery; Metcalfe's Notes and Pamphlets.

1896 to ——. Bruff's Ordnance and Gunnery.

The development of the course of ordnance and gunnery has been as follows: First, the whole subject, under the head of artillery, was taught by the department of tactics. In the early days of the institution very little scientific knowledge on the subject of artillery and ordnance was in existence. Hence the subject was taught at first practically, great attention being given to drill and very little to the principles. As knowledge upon the subject increased more time was devoted to the theory of the subject, and somewhere between 1820 and 1826 this knowledge had increased so greatly that it was deemed proper to transfer instruction in it to another department, where more time could be given it. It was transferred back again, however, for reasons not given, and in 1839 the course as laid down deals extensively with the theory of artillery, the determination of initial velocity, proof of gunpowder, rifling, causes of deviation in firing, etc.

The greatest step in the development of the course was undoubtedly its division in 1857 into two parts, the one practical and belonging to the department of tactics, the other theoretical and belonging to ordnance proper, or the study of the theory of gunpowder, pressures, velocities, and the effect of these upon the building of guns and upon their projectiles; also the numerous questions relating to pointing, metal for guns, manufacture of ordnance stores, and many

others of this class became for the first time the subject of a separate course.

The great ability of the first instructor of ordnance and gunnery, Colonel (then Captain) J. G. Benton, Ordnance Department, gave an organization and an impetus to the department that it has always felt. His text-book, Benton's Ordnance and Gunnery, is well known almost to the present time as a model book, and it has furnished the basis of most of the subsequent revisions.

The first of these was made by Colonel Alfred Mordecai, Ordnance Department, who published a series of pamphlets, taking up the different chapters of Benton in detail and correcting them to date. His intention was upon the completion of the work to publish it in book form, but unfortunately he was relieved from duty before this work was accomplished.

The course for some years after his tour of duty consisted of his pamphlets and those parts of Benton which still applied, supplemented by notes published by Major Clifton Comly, of the Ordnance Department, who succeeded him. It was during this time that the old system of exterior ballistics, Didion's, was replaced by a more modern one, Niven's.

Captain Henry Metcalfe, who succeeded Major Comly, found that the course needed a thorough revision, and he proceeded with the work with untiring energy, and finally published his Ordnance and Gunnery, which remained a text-book up to the present year, 1896.

When Captain Metcalfe's book was written the artillery system of the United States was in embryo, and also the subject of small arms and some others. Shortly after his relief from duty, in 1891, all these factors in the ordnance problem assumed definite shape. The system of artillery, guns, and carriages became fixed, a new small arm was adopted, smokeless powders came into vogue, and many other minor changes were made.

These changes necessitated a revision of the course again, and resulted in the text-book at present adopted by the

academic board and compiled by the present instructor of ordnance and gunnery.

The present course is contained in one text-book entitled Ordnance and Gunnery, Bruff, and a ballistic table, compiled by Captain James M. Ingalls, First Artillery, U. S. A., whose title is Ballistic Tables, Ingalls.

1. Gunpowder and interior ballistics.
2. High explosives and smokeless powder.
3. Guns.
4. Projectile and armor.
5. Fuses and primers.
6. Exterior ballistics.
7. Artillery carriages; theory of recoil.
8. Pointing; probability of fire.
9. Portable arms.
10. Machine and rapid-fire guns.

All parts of the course except those purely descriptive are illustrated by problems, which are solved as a test of the thoroughness with which the principles taught are understood.

The department is organized as follows: The head of the department has the official title of "Instructor of Ordnance and Gunnery." He is generally a captain of ordnance detailed by the Secretary of War for four years upon the recommendation of the Chief of Ordnance. The detail is not limited to captains, as shown by the list of instructors. Two assistants have been for some years allowed to the department, one a lieutenant of ordnance and the other detailed from the line of the Army.

The lieutenant of ordnance is the senior assistant instructor of ordnance and gunnery, and in addition to his duties as instructor he is attached to the ordnance detachment at the post and is required to assist in the duties pertaining to that detachment, such as the care and preservation of the batteries at the post, mounting and dismounting guns and carriages, etc.

The junior assistant is not attached to the detachment, and his duties are those of instruction only as a general rule, but he may be called upon to assist the senior assistant in the performance of any of his duties.

Each of the assistants instructs from 11 a. m. to 1 p. m. daily, except the Saturdays before mentioned, and his duties as instructor also require about two hours daily correcting problems and arranging models, drawings, and subjects for the next recitations. The necessary time must also be given to the preparation of the lesson for the daily recitations.

The duties of the head of the department are a close supervision of the instruction, explanations of models, and occasionally lectures, preparation of the new matter for the course to replace such as may become obsolete, procuring of models, and preparation of drawings for different parts of the course when required. In addition he has charge of all the ordnance and ordnance stores of the post, and is responsible for the condition of the batteries and their ammunition, for the care and preservation of the various stores used in mechanical maneuvers, and for the target supplies of cadets. He has command of the post ordnance detachment and regulates their duties.

The head of the department alternates in visiting sections. He endeavors to hear each section at least once a week, and more frequently if possible. The object of his visits is to become thoroughly acquainted with the Cadets, and their methods of recitation, and mental habits; also to note the methods of the instructors, and to make such corrections or suggestions to them as may establish as nearly as possible a uniform method of instruction throughout the department.

To further this end the sections change their instructors every two weeks. This enables any inequality in the method of marking to be eliminated, and the sections also alternate every two weeks in hours of attendance, so that each Cadet may have as far as possible the same advantages and disadvantages in this respect.

In studying the subject of ordnance and gunnery there are necessarily many objects described which are complicated and difficult to understand thoroughly without the use of models and drawings. Hence the department has endeavored to procure models of all the different machines, guns, carriages, etc., referred to in the text. These are kept in the section

rooms during recitation upon the particular subject to which they refer, and the recitation is made from them.

Drawings of all the more difficult and complicated parts of the different objects are also prepared beforehand, and are used in the recitations.

After six advance lessons have been studied they are reviewed in three lessons, and at the end of each six months' course, in December and May, the whole of the previous course is reviewed generally.

The examinations have so far been oral, owing to changing text-books and lack of facilities during the erection of the new academic building, but it is believed that in future at least one of the examinations should be written, and that frequent written recitations should be held during the course. The oral examinations are conducted in the presence of a committee of the academic board, and do not differ from an ordinary recitation in the section room. If a Cadet fails upon the subject assigned him, or fails to establish his proficiency to the satisfaction of the committee, he is given a second subject, and his examination is continued until his proficiency or deficiency is established.

In case he fails to establish his proficiency he is subjected to a written examination, the questions for which are approved by the committee.

In reviewing the present course in ordnance and gunnery and comparing it with former courses, it is thought that the following points have been kept in view:

1. It has been simplified. The mathematical parts of the course, though necessarily more extensive than formerly, have been worked out more in detail. Every equation is deduced plainly and nothing left to puzzle the student. Furthermore, as a general rule all the equations introduced have some direct practical use and bearing upon ordnance, and this use and bearing are pointed out.

In the recitations no memorizing of equations or of mathematical steps is required. Every equation which is to be used in a given discussion is printed with the subject which is given to the Cadet, and in case equations are to be deduced

from those given, the various steps in the process are given in the form of a synopsis, unless these steps are perfectly obvious. The reason for this is that the object of the course is to teach ordnance and not mathematics, and in order that all the time may be given to understanding and applying the principles taught. With the description of guns, carriages, small arms, etc., the object has been to confine the description to few objects and to make the description of each thorough and general, the idea being that it is more advantageous to understand one carriage or one gun thoroughly than to have a vague idea of many. The descriptions are illustrated by copious drawings and by models, so that there is no difficulty in thoroughly understanding what is taught.

2. It has been extended to cover generally the whole ordnance field. This statement may be regarded as somewhat rash, seeing that the ordnance field covers so much at the present day, but it is safe to assert that after going over the present course there is very little on the subject of ordnance that the graduate would feel ignorant of. Many subjects have been treated to a very limited extent, but the general principles of each have been given, and it is believed there is enough of each to build upon. Care has been taken that nothing shall be taught which must be unlearned, and especial attention has been given to our own systems. But as a general rule principles are taught rather than details, wherever possible, and in describing details the reasons for them and the principles on which they depend are pointed out.

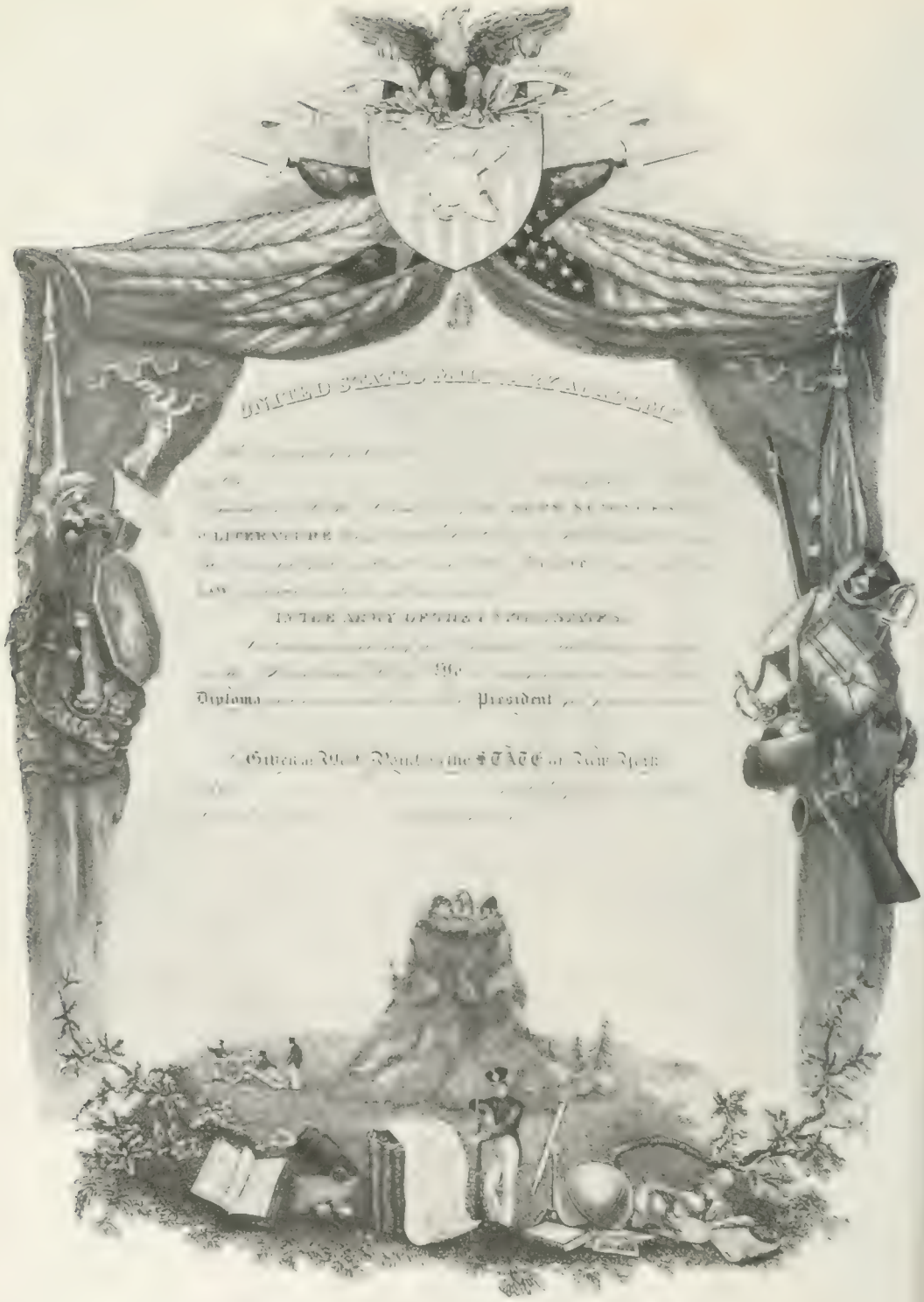
3. The instruction is at present more thorough than formerly. This is entirely owing to the fact that the department has at present, and has had for some years, two instructors instead of one. This enables the head of the department to watch the instructors constantly, to criticise and correct defects wherever they may occur, and to assist in the instruction wherever he may deem it necessary. It virtually gives three instructors instead of two, with greatly increased efficiency.

When the class is small the sections are small, and the instruction all that could be asked. With large classes the sections become large, and the thoroughness necessarily

diminishes, owing to lack of time to be given to each Cadet. But the advantage of two assistants over one is maintained for all classes.

It is difficult to compare the instruction in this department with that in any other institution, as there is really no corresponding department in any other institution. The department of ordnance and gunnery at the Naval Academy is the nearest approach to it, and that, it is understood, includes both the scientific instruction in ordnance and gunnery and practical instruction. In other words, it corresponds more nearly to the old department of artillery here. So far as the scientific part of the course goes, an examination of the textbooks in use at the Naval Academy indicates that the two courses are very nearly alike. In general the same subjects are taught, and to the same extent at both places, with the exception that field artillery and small arms are taught at the Military Academy in the place of torpedoes and some other subjects exclusively naval at the latter academy.

In conclusion it may be said that the object of the course in ordnance and gunnery, like that of other courses at the Academy, is to teach general principles and their application in this country to our service, so that the Cadet upon graduation will be enabled to take his place as an officer, with the practical knowledge which an officer should possess of the weapons he is called upon to handle, and beyond this, with a broad foundation upon which future knowledge of the subject may rest.


UNITED STATES MILITARY ACADEMY
LIEUTENANT
IN THE ARMY OF THE UNITED STATES
Diploma
President
Given at West Point, in the STATE of New York

DIPLOMA OF [illegible]

A TENTATIVE LIST OF TEXT-BOOKS USED IN THE UNITED STATES MILITARY ACADEMY AT WEST POINT FROM 1802 TO 1902.

Compiled by Dr. EDWARD S. HOLDEN and Mr. W. L. OSTRANDER.

A Text-Book is here defined as a volume which has been authorized by the Secretary of War or other competent authority (usually on the recommendation of the academic board) for use in the Academy.

This list has been compiled from the report of the Superintendent U. S. Military Academy for 1896, from the Annual Registers U. S. Military Academy, and from other sources. It is very much more complete than any existing list, but still requires correction.

Those books having a shelf number preceding their titles in this list are owned by the Academy; those not so marked are much desired.

The edition of a text-book owned by the library is here recorded, although an earlier edition may have been the text-book. The last lines of each entry give the authority for including the book in this list.

All these books are shelved together in the library.

Besides the text-books here named, a considerable number of small manuals have been printed by the different departments, from time to time, to facilitate work in the lecture room or to summarize certain parts of the course. All of these are not included in the present list.

An asterisk (*) indicates that the book was used for reference only.

100 P. 19 **Paley** (**William**): The Principles of Moral and Political Philosophy . . . 8th ed. Boston, 1815. 1 v., O.

Text book department of history and ethics 1820 to 1841; *Report Board of Visitors* 1841, *American State Papers* Military Affairs Vol. II p. 660, and *Cadet Register* 1843 p. 20.

109 T. 30 **Tennemann** (?): A manual of the History of Philosophy . . . tr. from the German by Rev. Arthur Johnson, rev., enlarged, and continued by J. R. Morrell. London, 1852. 1 v., O.

Text book department of history, geography, and ethics, 1858 to 18[illegible] *Cadet Register* 1858 p. 18 and 1861 p. 18.

160 H. 36 **Hedge** (**Levi**): Elements of Logick, or a summary of the general principles and different modes of reasoning. Boston, 1840. 1 v., O.

Text book department of history, geography, and ethics 1844 to 184[illegible] *Cadet Register* 1844, p. 30, and 1847 p. 29.

160 W. 40 **Whately** (**Richard**): Elements of Logic, comprising the substance of the article in the Encyclopædia Metropolitana, with additions, etc. Boston, 1848. 1 v., O.

Text book department of history, geography, and ethics 1848 to 185[illegible] *Cadet Register* 1848 p. 27 and 1851 p. 18.

.7 I. 8 **French J. W. Rev.:** A short course of instruction in the Practical Part of Ethics. N. Y., 1858. 1 v., O.

Text-book department of history, geography, and ethics, 1865 to 1877.—*Cadet Register*, 1865, p. 12, and 1877, p. 9.

170 W. 18 **Wayland (Francis):** The Elements of Moral Science. Boston, 1838. 1 v., O.

Text-book department of history, geography, and ethics, 1844 to 1861.—*Cadet Register*, 1844, p. 20, and 1861, p. 18.

Prayer book (each cadet was furnished with one).

U. S. Military Academy, 1814 to 1816.—*Partridge MS.*

340 D. 20 **Davis (George B.):** (U. S. Military Academy, 1871.) An introduction to the study of Constitutional and Military Law of the United States. Wash., 1896. 1 v., O.

Text-book department law and history, 1876 to 1897.—*Report Superintendent U. S. Military Academy*, 1896, p. 157, and *Cadet Register*, 1876 and 1897, p. 32.

R. 340 D. 21 **Davis (George B.):** (U. S. Military Academy, 1871.) The Elements of Law. An introduction to the study of the Constitutional and Military Law of the United States . . . 1st ed. N. Y., 1897. 1 v., O.

Text-book department law and history, 1898 to (?).—*Cadet Register*, 1898, p. 32.

340.1 B. 90 **Burlamaqui (J. J.):** The Principles of Natural and Politic Law . . . 5th ed. Cambridge, 1807. 2 v., O.

Text-book department of law, from (?) to (?). (The copy of this book owned by library U. S. Military Academy shows almost to a certainty that it was used as a text-book.)

Davis (George B.): (U. S. Military Academy, 1871.) Outlines of International Law, with an account of its origin and sources and of its historical development. N. Y., 1887. 1 v., O.

Text-book department law, 1892–96, and department law and history 1896–1900.—*Cadet Registers*, 1892, 1896, 1900, pp. 32.

341 D. 21 **Davis (George B.):** (U. S. Military Academy, 1871.) The Elements of International Law, with an account of its origin, sources, and historical development . . . New and rev. ed. N. Y. and Lond., 1902. 1 v., O.

Text-book department law and history, 1900 to (?).—*Cadet Register*, 1900, p. 32.

341 H. 20 **Halleck (H. W.):** (U. S. Military Academy, 1839.) International Law, or rules regulating the intercourse of States in peace and war. N. Y., 1861. 1 v., O.

Text-book department ethics and law, 1866 to 1875.—*Report Superintendent U. S. Military Academy*, 1896, p. 157.

341 V. 20 **Vattel, M. de:** The Law of Nations, or Principles of the Law of Nature applied to the conduct of affairs of Nations and Sovereigns . . . 4th Am. ed. Phila., 1835. 1 v., O.

Text-book department history, geography, and ethics, from 1821 to 1825.—*Report Superintendent U. S. Military Academy*, 1896, p. 157, and *Report of Board of Visitors*, 1821–1825.

341 W. 39 **Wheaton (Henry):** Elements of International Law. Phila., 1836. 1 v., O.

Text-book department history, geography, and ethics, 1875 to 1882.—*Report Superintendent U. S. Military Academy*, 1896, p. 180.

341 W. 68 **Woolsey (Theodore D.)**: Introduction to the study of International Law . . . 2d ed. N. Y., 1864. 1 vol., O.

Text-book department of law, 1875 to 1891.—*Report Superintendent U. S. Military Academy*, 1891, p. 187, and *Cadet Register*, 1891, p. 1.

342.73 An. 30 **Andrews (Israel Ward)**: Manual of the Constitution of the United States. N. Y., 1887. 1 v., O.

Text-book department of law and history, 1888.—*Cadet Register*, 1888, p. 32.

342.73 C. 76 **Cooley (Thomas M.)**: The General Principles of Constitutional Law in the United States of America . . . 2d ed. by Alexis C. Angell. Boston, 1891. 1 v., O.

Text-book department of law, 1881 to 1887; department of law and history, 1887–1897.—*Report Superintendent U. S. Military Academy*, 1896, p. 157, and *Cadet Register*, 1881, p. 31, and 1887, p. 32.

342.73 F. 60 **Flanders (Henry)**: An Exposition of the Constitution of the United States . . . 4th ed. Phila., 1883. 1 v., O.

Text-book department law and history, 1888 to 1897.—*Cadet Register*, 1888, p. 32.

342.73 **Pomeroy (J. N.)**: Introduction to the Constitutional Law of the United States. n. p., 1868. 1 v., O.

Text-book department law, 1875 to 1878.—*Report Superintendent U. S. Military Academy*, 1896, p. 157.

342.73 R. 20 **Rawle (William)**: A View of the Constitution of the United States of America. Phila., 1825. 1 v., O.

Text-book department of law from (?) to (?).—The copy of this book owned by Library U. S. Military Academy makes it very probable that it was used as a text-book.

345 K. 28 **Kent (James)**: Commentaries on American Law . . . Vol. I, Part II, Government and Constitutional Jurisprudence of the United States. N. Y., 1826. 1 v., O.

Text-book department geography, history, and ethics, 1839 to 1875, and law, 1878 to 1880.—*Report Superintendent U. S. Military Academy*, 1896, p. 156, and *Cadet Register*, 1878, p. 34, and 1880, p. 36.

345 K. 30 **Kent (James)**: Commentaries on American Law . . . Part I, The Law of Nations. 9th ed. Boston, 1858. 1 v., O.

Text-book department geography, history, and ethics, 1838 to 1866.—*Report Superintendent U. S. Military Academy*, 1896, p. 156.

Official Publications of Signal Department.

*Text-book department practical military engineering, 1902 to (?).—*Cadet Register*, 1902, p. 31.

398.9 T. 90 **Tuet (l'abbé)**: Matinées Sénonoises, ou Proverbes François. Paris, 1789. 1 v., O.

Text-book department modern languages from ? to ? The copy in the Library contains notes that show this book to have been used as a text-book.

420 M. 30 **Meiklejohn (J. M. D.)**: The English Language, its Grammar, History, and Literature. Boston, Chicago, N. Y., 1896. 1 v., O.

Text-book department modern languages, 1893 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 145.

420.7 (1008) **Abbott (E. A.) and Seeley (J. R.)**: English Lessons for English People. Boston, 1876. 1 v., O.

Text-book department history, geography, and ethics, 1877 to 1878; department French and department modern languages, 1878 to 1893.—*Report Superintendent U. S. Military Academy*, 1896, p. 142, and *Cadet Register*, 1878, p. [illegible]

423 **International Dictionary.**

* This book is furnished to Cadets and kept in their rooms during term time.

423 **Standard Dictionary.**

* This book is furnished to Cadets and kept in their rooms during term time.

424 R. 70 **Roget Peter Mark** : Thesaurus of English Words and Phrases, so classified and arranged as to facilitate the expression of ideas and assist in literary composition . . . Rev. and edited by Barnas Sears. Boston, 1857. 1 v., O.

Text-book department of geography, history, and ethics, 1858 to 1867. — *Cadet Register*, 1858, p. 17, and 1867, p. 24.

424 R. 71 **Roget** (**Peter Mark**): Thesaurus of English Words and Phrases, so classified and arranged as to facilitate the expression of ideas and assist in literary composition . . . Rev. and edited by Barnas Sears. Boston, 1857. 1 v., O.

Text-book department modern languages, 1863 to (?). — *Report Superintendent U. S. Military Academy*, 1867, p. 148.

424 Sm. 50 **Smith** (**Charles John**): Synonyms Discriminated. A dictionary of synonymous words in the English language. London, 1882. 1 v., O.

* Text-book department modern languages, 1863 to (?). — *Report Superintendent U. S. Military Academy*, 1867, p. 148.

French (**J. W.**), **Rev.**: Vocabularies.

Text-book department history, geography, and ethics, 1860 to 1867. — *Cadet Register*, 1860, p. 19, and 1867, p. 24.

Whitney (**William D.**): Essentials of English Grammar.

Text-book department modern languages, 1872 to 1878. — *Cadet Register*, 1874, p. [illegible], and 1878, p. 20.

French (**J. W.**), **Rev.**: Prefixes and Suffixes.

Text-book department history, geography, and ethics, 1860 to 1861. — *Cadet Register*, 1860, p. 19, and 1861, p. 19.

425 B. 90 **Bullions** (**Peter**), **Rev.**: The Principles of English Grammar, comprising the substance of the most approved English grammars extant, with copious exercises in parsing and syntax, and an appendix of various and useful matter. N. Y., 1851. 1 v., O.

Text-book department history, geography, and ethics, 1845 to 1858, and 1861 to 1867. — *Cadet Register*, 1845, p. [illegible], and 1861, p. [illegible].

425 F. 69 **Fowler** (**William C.**): English Grammar. The English language in its elements and forms, with a history of its origin and development . . . Revised and enlarged edition. N. Y., 1858. 1 v., O.

Text-book department history, geography, and ethics, 1858. — *Cadet Register*, 1858, p. [illegible].

425 F. 80 **French** (**J. W.**) **Rev.**: Grammar: Part of a course on Language, prepared for instruction of the U. S. Corps of Cadets . . . 2d ed. N. Y., 1865. 1 v., O.

Text-book department history, geography, and ethics, 1863 to 1867. — *Cadet Register*, 1863, p. 19, and 1867, p. 24.

425 K. 48 **Kirkham (Samuel)**: English Grammar, in Familiar Lectures, accompanied by a compendium, embracing a new systematic order of parsing, a new system of punctuation, exercises in false syntax, and a system of philosophical grammar, in notes . . . appendix . . . key to the exercises . . . New ed. N. Y., 1829. 1 v., O.

Text-book department history, geography, and ethics, 1842 to 1844.—*Cadet Register*, 1842, p. 23, and 1844, p. 21.

428.2 Ab. 30 **Abbott (Edwin A.) Rev.**: How to Write Clearly. Rules and Exercises on English Composition. Boston, 1888. 1 v., O.

Text-book department French and modern languages, 1880 to (?).—*Cadet Register*, 1880, p. 35.

R. 441.5 D. 81 **De Peiffer (Jean)**: French Pronunciation; Rules and Practice . . . 5th ed. N. Y., 1891. 1 v., O.

Text-book department modern languages, 1893 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 146, and *Cadet Register*, 1894 and 1895, p. 30.

443 H. 30 **Hennequin (Alfred)**: Practical Lessons in Idiomatic French . . . New revised ed. N. Y., 1881. 1 v., O.

Text-book department modern languages, 1895 to (?).—*Cadet Register*, 1895, p. 30.

R. 443 Sp. 53 **Spiers (A.) and Surrenne (Gabriel)**: Standard Pronouncing Dictionary of the French and English Languages. N. Y., 1859. 1 v., O.

* Text-book department French and modern languages, 1856 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

Masson (?): French Grammar.

Text-book department French, 1814 to 1821.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

445 B. 30 **Berard (Claudius)**: A Grammar of the French Language. N. Y., 1826. 1 v., O.

Text-book department French, 1832 to 1840.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

445 B. 70 **Bolmar (A.)**: Theoretical and Practical Grammar of the French Language . . . New and rev. ed. N. Y., 1834. 1 v., O.

Text-book department Freneh, 1849 to 1872.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

445 B. 74 **Borel (Eugene)**: Grammaire Française à l'usage des Anglais. Stuttgart, 1867. 1 v., O.

Text-book department French and modern languages, 1872 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 139.

445 Ed. 40 **Edgren (A. Hjalmar)**: A Compendious French Grammar in two independent parts, Introductory and Advanced. Boston, 1898. 1 v., O.

Text-book department modern languages, 1895 to (?).—*Cadet Register*, 1895, p. 30.

R. 445 K. 31 **Keetels (Jean Gustave)**: An Analytical and Practical French Grammar . . . New ed. N. Y., 1900. 1 v., O.

Text-book department French and modern languages, 1879 to (?).—*Cadet Register*, 1879, p. 33.

445 L. 20 **Lévizac, M. de:** Theoretical and practical grammar of the French Tongue, in which the present usage is displayed and all the principal difficulties explained . . . to which has been added a treatise on French Versification . . . Rev. and corrected by A. C. Houel. N. Y., 1823. 1 v., O.

Text-book department French, ? to ?. The copy in the Library contains notes that show this book to have been used as a text-book.

445 L. 30 **Lévizac, M. de:** Theoretical and Practical Grammar of the French Tongue. N. Y., 1824. 1 v., O.

Text-book department French, 1841 to 1872.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

445 N. 30 A new Grammar of the French Tongue, originally compiled for the use of the American Military Academy . . . by a French Gentleman (Masson ?). N. Y., 1854. 1 v., O.

Text-book department French, 1854 to 1876 ?.—*Partridge MS.*

445 Ot. 80 **Otto (Emil), Dr.:** French Conversation Grammar. A new and practical method of learning the French language . . . Rev. by Ferdinand Bôcher.

Text-book department French, 1872 to 1878.—*Report Superintendent U. S. Military Academy*, 1896, p. 139.

445 P. 30 **Perrin (John):** A grammar of the French tongue, grounded upon the decisions of the French Academy, wherein all the necessary rules, observations, and examples are exhibited in a manner entirely new. 11th ed. N. Y., 1804. 1 v., O.

Text-book (?) department French, from (?) to (?). The copy in Library contains notes that indicate that this book was used as text-book.

445 W. 22 **Wonostrocht (N.):** A grammar of the French Language, with practical exercises . . . 5th Am. from 14th Lond. ed. Boston, 1819. 1 v., O.

Text-book department French, 1821 to 1832 (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

445.4 F. 30 **Fenelon:** The Adventures of Telemachus, the son of Ulysses, by the Archbishop of Cambray . . . Revised and corrected by Jos. Nancrede. Boston, 1797. 1 v., O.

Text-book department French, from (?) to (?). The copy in Library contains notes that show this book to have been used as a text-book.

445.8 C. 20 **Castaréde (J.):** A complete treatise on the Conjugation of French Verbs . . . New ed. London, 1900. 1 v., O.

Text-book department modern languages, 1895 to (?).—*Cadet Register*, 1895, p. 30.

445.8 R. 30 **Reynal (Ch.):** The French Verb; containing the theory, and model conjugations of all the French verbs. N. Y., 1870. 1 v., O.

Text-book department French, 1872 to 1881.—*Report Superintendent U. S. Military Academy*, 1896, p. 139.

P. 447 Revue Militaire des Armées Etrangères.

Text-book department modern languages, 1895 to (?).—*Cadet Register*, 1895, p. 30.

448 R. 50 **Roemer (J.):** Cours de Lecture et de Traduction. N. Y., 1901. 2 v., O.

Text-book department modern languages, Vol. I, 1885 to 1902; Vol. II, 1894 to [illegible].—*Cadet Register*, 1885, p. 30; 1886, p. 30; 1902, p. 31.

448 R. 50 **Keetels (Jean G.)**: An Analytical French Reader.

Text-book department modern languages, 1882 to 1893.—*Cadet Register*, 1882, p. 31, and 1893, p. 30.

Bôcher (F.): Progressive French Reader, with vocabulary and notes.

Text-book department French, 1872 to 1881.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

Masson (?): French Reader.

Text-book department French, 1814 to 1821. *Report Superintendent U. S. Military Academy*, 1896, p. 139.

Agnel (H. R.): Tabular System.

Text-book department French, 1859 to 1883.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

448 Ag. 60 **Agnel (H. R.)**: Cours d'Idiotismes à l'usage, etc.

Text-book department French, 1859 to 1883.

448 B. 28 **Berard (C.)**: Leçons Françaises a l'usage des Commençans. Paris, 1822. 1 v., O.

Text-book department French, 1832 to 1872.—*Report Superintendent U. S. Military Academy*, 1896, p. 138; and *Cadet Register*, 1872, p. 27.

418 C. 38 **Chapsal (M.)**: Leçons et Modeles de Littérature Française ou Choix de Morceaux en Prose et en Vers . . . Nouvelle ed. N. Y., 1846. 1 v., O.

Text-book department French, 1848 to 1872.—*Cadet Register*, 1848, p. 23, and 1872, p. 27.

448 D. 90 **Dufief (N. G.)**: Nature displayed in her mode of teaching language to man . . . Adapted to the French . . . 3d ed. Phila., 1810. 2 v., O.

Text-book department French, 1810.—*Cullum's Address Thayer Monument Dedication*, p. 13.

448 L. 30 **Le Brethon (J. J. P.)**: Guide to the French Language . . . corrected, enlarged, and improved, by P. Bekeart . . . 2d Am. from 7th London ed. N. Y., 1846. 1 v., O.

Text-book department French, 1847 to 1849.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

448 M. 17 **Martel (Michael)**: Martel's elements, in 3 vols. Vol. I, New essays on education, relative especially to History, Moral Philosophy, and Composition; Vol. II, An introduction to the French Language . . . ; Vol. III, A selection of delicate bon-mots, Anecdotes, . . . N. Y., 1796. 3 v., O.

Text-book (?) department French, from (?) to (?). The copy in Library contains notes that indicate that this book was used as text-book.

448 M. 90 **Murray (Lindley)**: Lecteur Français ou recueil de pièces, en prose et en vers. Phila., 1812. 1 v., O.

Text-book department French, 1821 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

448 R. 77 **Rowan (F. M.)**: Morceaux Choisis des Auteurs Modernes, à l'usage de la Jeunesse. N. Y., 1870. 1 v., O.

Text-book department French and modern languages, 1894 to 1895.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

Murray (Lindley): English Reader.

Text-book department French, 1840 to 1847.—*Report Superintendent U. S. Military Academy*, 1896, p. 138; and *Cadet Register*, 1847, p. 23.

Eco de Madrid.

Text-book department modern languages, 1895 to (?)—*Cadet Register*, 1895, p. 30.

460.7 (3289) **Vingut (F. J.):** A guide to Spanish and English conversation . . . by Emanuel Del Mar, revised by F. J. Vingut, who has added a treatise on Spanish pronunciation and orthography. N. Y., 1854. 1 v., O.

Text-book department Spanish, 1874 to 1883.—*Report Superintendent U. S. Military Academy*, 1896, p. 141.

460.7 (5534) **Josse (M.):** A Grammar of the Spanish Language. N. Y., 1869, 1 v., O.

Text-book department Spanish, 1856 to 1874.—*Report Superintendent U. S. Military Academy*, 1896, p. 141.

460.7 (6391) **Mantilla (Luis F.):** Libro de Lectura No. 3. N. Y., 1865. 1 v., O.

Text-book department Modern Languages, 1893 to 1900.—*Report Superintendent U. S. Military Academy*, 1896, p. 147; and *Cadet Register*, 1900, p. 30.

M. 463 V. 30 **Cadena (Mariano Velazquez) de la:** Pronouncing Dictionary of the Spanish and English Languages, compiled from the Spanish dictionaries of the Spanish Academy, Terreros, and Salva, upon the basis of Seoanes edn. of Neuman and Baretti, and from the English dictionaries of Webster, Worcester, and Walker. N. Y., 1857. 1 v., O.

Text-book department Spanish and modern languages, 1865 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 141.

465 K. 60 **Knapp (William I.):** A grammar of the Modern Spanish Language . . . 2d ed. Boston, 1892. 1 v., O.

Text-book department modern languages, 1883 to 1902.—*Report Superintendent U. S. Military Academy*, 1896, p. 144, and *Cadet Register*, 1902, p. 31.

465.18 T. 80 **Traub (Peter E.):** (U. S. Military Academy, 1886.) The Spanish Verb, with an introduction on Spanish Pronunciation. N. Y., 1900. 1 v., O.

Text-book department modern languages, 1901 to (?).—*Cadet Register*, 1901, p. 31.

468 K. 60 **Knapp (William I.):** Modern Spanish Readings, embracing text, notes, and an etymological vocabulary. Boston, 1895. 1 v., O.

Text-book department modern languages, 1883 to 1902.—*Report Superintendent U. S. Military Academy*, 1896, p. 144, and *Cadet Register*, 1902, p. 31.

468 M. 70 **Monsanto (H. M.) & Languellier (L. A.):** A practical course with the Spanish Language. N. Y., 1875. 1 v., O.

Text-book department modern languages, 1895 to (?).—*Cadet Register*, 1895, p. 33.

468 (01.60) **Velazquez (M.) & Simonné (T.):** Ollendorff's New Method of learning to read, write, and speak the Spanish language. N. Y., 1867. 1 v., O.

Text-book department Spanish, 1857 to 1883.—*Cadet Register*, 1857, p. 16, and *Report Superintendent U. S. Military Academy*, 1896, p. 141.

468 M. 76 **Morales (Augustin José):** Progressive Spanish Reader, with an analytical study of the Spanish Language. N. Y., 1876. 1 v., O.

Text-book department Spanish, 1858 to 1883.—*Report Superintendent U. S. Military Academy*, 1896, p. 141.

468 R. 21 **Ramsey (M. Montrose):** An elementary Spanish Reader. N. Y., 1900, 1 v., O.

Text-book department modern language, 1901 to (?).—*Cadet Register*, 1901, p. 31.

468 R. 70 **Roemer** (**J.**) and **Comancho** (**Simon:**) Polyglot Reader, and guide for translation, consisting of a series of English extracts, with their translation into French, German, Spanish, and Italian. N. Y., 1855. 1 v., O.

Text-book department Spanish, 1856 to 1858.—*Report Superintendent U. S. Military Academy*, 1896, p. 141.

510 H. 88a **Hutton** (**Charles**): Course of Mathematics . . . 3d ed. Lond., 1800. 1 v., O.

Text-book department mathematics from ? to 1823.—*Report Superintendent U. S. Military Academy*, 1896, p. 30.

510 H. 89 **Hutton** (**Charles**): A course of mathematics in two volumes . . . Revised and corrected by Robert Adrian, from 5th and 6th London ed. N. Y., 1818. 2 v., O.

Part relating to conic sections used as text-book department mathematics, 1818 to 1824(?).—*Report Superintendent U. S. Military Academy*, 1896, p. 43.

510 M. 16 **Mansfield** (**J.**): Essays, Mathematical and Physical; containing new theories and illustrations of some very important and difficult subjects of the sciences. New Haven, n. d. 1 v., O.

Text-book (?) department of (?) from (?) to (?). The copy in the Library contains notes that seem to show that this book was used as a text-book.

Logarithm-tables by (?)

Text-book U. S. Military Academy, 1814 to 1816.—*Partridge MS.*

510.8 Ad. 20 **Adams** (**George**): Geometrical and Graphical Essays, containing a general description of the mathematical instruments used in Geometry, Civil and Military Surveying, Levelling, and Perspective. Lond., 1803. 1 v., O.

Text-book department mathematics, October 7, 1808, to (?).—*W. D. Mily*, Bk. No. 2.

Davies (**C.**) (U. S. Military Academy, 1815): Mensuration.

Text-book department mathematics, 1832 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 37.

512 B. 67 **Bourdon** (**M.**): Elements of Algebra . . . *tr.* from the French by Lieut. Edward C. Ross. [U. S. M. A. 1821.] N. Y., 1831. 1 v., O.

Text-book department mathematics, 1831 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 46.

512 B. 68 **Bourdon** (**M.**): Elements of Algebra . . . *tr.* from the French by Charles Davies . . . Rev. ed. N. Y. 1839. 1 v., O.

Text-book department mathematics, 1839 to 1899.—*Report Superintendent U. S. Military Academy*, 1896, p. 48.

512 L. 15 **Lacroix** (**S. F.**): Elémens D'Algebre, à l'usage de L'Ecole Centrale des Quatre-Nations . . . Trezième ed. Paris, 1820. 1 v., O.

Text-book department mathematics, 1825 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 46.

512 L. 16 **Lacroix** (**S. F.**): Elements of Algebra . . . *tr.* from the French by John Farrar. 2d ed. Cambridge, 1825. 1 v., O.

Text-book department mathematics, 1823 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 43.

512 Sm. 50 **Smith** (**Charles**): A treatise on Algebra . . . 4th ed. Lond., 1893. 1 v., O.

Text-book department mathematics, 1900 to (?).—*Cadet Register*, 1900, p. 30.

512.83 **Knight** (**John G. D.**), **Lieut.** (U. S. Military Academy, 1868): Notes on Determinants, for the use of the Cadets of the U. S. Military Academy. West Point, 1880. 1 v., O.

Text-book department mathematics, 1880 to 1885.—*Report Superintendent U. S. Military Academy*, 1882, pp. 63 and 64.

512.83 P. 30 **Peck William** (**G.**) (U. S. Military Academy, 1844): Elementary treatise on Determinants. N. Y., 1888. 1 v., O.

Text-book department mathematics, 1887.—*Cadet Register*, 1887, p. 30.

513 L. 25 **Legendre** (**A. M.**): Elements of Geometry . . . *tr.* from the French . . . by John Farrar . . . 2d ed. Cambridge, 1825. 1 v., O.

Text-book department mathematics, 1825 to (?).—*Report Superintendent U. S. Military Academy*, 1826, p. 45.

513 L. 26 **Legendre** (**A. M.**): Elements of geometry and trigonometry, with notes . . . *tr.* from the French by David Brewster . . . Rev. and altered for the use of the Military Academy at West Point. N. Y., 1828. 1 v., O.

Text-book department mathematics, 1832 to (?).—*Report Superintendent U. S. Military Academy*, 1896, pp. 47 and 51.

513 L. 27 **Legendre** (**A. M.**): Elements of geometry and trigonometry . . *tr.* from the French by David Brewster . . . Rev. and adapted to instruction in U. S. by Chas. Davies. N. Y., 1839. 1 v., O.

Text-book department mathematics, 1839 to 1853, and trigonometry to 1863.—*Report Superintendent U. S. Military Academy*, 1896, pp. 51 and 59.

R. 513 L. 28a **Legendre** (**A. M.**): Elements of geometry and trigonometry . . . *tr.* from the French by Charles Davies, edited by J. H. Van Amringe. N. Y., 1890. 1 v., O.

Text-book department mathematics, 1895 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 71.

513 P. 40 **Phillips** (**A. W.**) and **Fisher** (**Irving**): Elements of Geometry. N. Y. and Lond., 1898. 1 v., O.

Text-book department mathematics, 1902 to (?).—*Cadet Register*, 1902, p. 31.

513.22 Si. 60 **Simson** (**Robert**): Elements of Conic Sections . . . 2d ed. Edinburgh, 1792. 1 v., O.

Text-book department mathematics from (?) to 1818.—*Report Superintendent U. S. Military Academy*, 1826, p. 45.

513.22 Sm. 50 **Smith** (**Charles**): An elementary treatise on Conic Sections. Lond., 1894. 1 v., O.

Text-book department mathematics, 1894 to (?).—*Cadet Register*, 1894, p. 3.

Church (**Albert E.**) (U. S. Military Academy, 1828): Plane and spherical trigonometry.

Text-book department mathematics, 1879 to 1887.—*Cadet Register*, 1879, p. 33, and 1887, p. 30.

Church (**Albert E.**) (U. S. Military Academy, 1828): Pamphlet on trigonometry.

Text-book department mathematics, 1863 to 1868.—*Report Superintendent U. S. Military Academy*, 1896, pp. 51 and 64.

513.3 Sm. 50 **Smith** (**Charles**): An elementary treatise on solid geometry . . . 5th ed. . . . Lond., 1895. 1 v., O.

Text-book department mathematics, 1899 to (?).—*Cadet Register*, 1899, p. 30.

514 F. 20 **Farrar** (**J.**): An elementary treatise on the application of trigonometry to orthographic and stereographic projections . . . together with logarithmic and other tables. Cambridge, 1822. 1 v., O.

Text-book department mathematics, 1824 to (?).—*Report Superintendent U. S. Military Academy*, 1876, p. 45.

514 L. 17 An elementary treatise on plane and spherical trigonometry and on the application of algebra to geometry . . . *tr.* from the French by Cummings and Hilliard for the use of the students of the University at Cambridge . . . 1st ed. Cambridge, 1820. 1 v., O.

Text-book department mathematics 1823 to (?).—*Report Superintendent U. S. Military Academy*, 1876, p. 45.

514 L. 90 **Ludlow** (**Henry H.**) (U. S. Military Academy, 1876): Elements of trigonometry. N. Y., 1888. 1 v., O.

Text-book department mathematics 1888 to (?).—*Cadet Register*, 1888, p. 3.

514 L. 92 **Ludlow** (**Henry H.**) (U. S. Military Academy, 1876): Elements of trigonometry, with logarithmic and other tables . . . 3d ed. N. Y., 1893. 1 v., O.

Text-book department mathematics 1892 to (?).—*Cadet Register*, 1892, p. 30.

514 Si. 60 **Simpson** (**Thomas**): Trigonometry, plane and spherical; with the construction and application of logarithms. Lond., 1799. 1 v., O.

Text-book department mathematics in April, 1816.—*Partridge MS.*

515 C. 40 **Church** (**Albert E.**) (U. S. Military Academy, 1828): Elements of descriptive geometry, with applications to spherical, perspective, and isometric projections and to shades and shadows. N. Y., 1870. 1 v., O.

Text-book department mathematics 1864 to 1893.—*Cadet Register*, 1864, p. 19, and 1893, p. 30.

515 C. 80 **Crozet** (**C.**): A treatise on descriptive geometry . . . Pt. II . . . its application to perspective, shades, and shadows. N. Y., 1821. 1 v., O.

Text-book department mathematics 1824 to 1831.—*Report Superintendent U. S. Military Academy*, 1876, pp. 46, 47, and *American State Papers, Military Academy* Vol. II, p. 661.

515 C. 80 **Crozet** (**C.**): A treatise on descriptive geometry. Pt. I.—Containing the elementary principles of descriptive geometry and its application to spheric and conic sections.

Text-book department mathematics 1824 to (?).—*American State Papers, Military Academy* Vol. II, p. 661.

515 D. 29 **Davies** (**Charles**) (U. S. Military Academy, 1815): Elements of descriptive geometry. Phila., 1844. 1 v., O.

Text-book department mathematics 1832 to 1864.—*Report Superintendent U. S. Military Academy*, 1876, p. 47, and *Cadet Register*, 1864, p. 18.

515 D. 30 **Davies** (**Charles**) (U. S. Military Academy, 1815): Elements of descriptive geometry, with their application to spherical trigonometry, spherical projections, and warped surfaces. Phila., 1826. 1 v., O.

Text-book department mathematics 1839 to 1864.—*Report Superintendent U. S. Military Academy*, 1876, pp. 52 and 89, and *Cadet Register*, 1864, p. 18.

515 M. 30 **Mahan D. H.** (U. S. Military Academy, 1824): Descriptive geometry as applied to the drawing of fortifications and stereotonomy. N. Y., 1870. 1 v., O.

Text-book department civil and military engineering, 1841 to 1863 and 1870 to [illegible].—*Cadet Register*, 1841, p. 22, 1863, p. 17, 1899, p. 25.

515.7 D. 80 **Davies (C.)** (U. S. Military Academy, 1815): A treatise on shades and shadows and linear perspective. N. Y., 1851. 1 v., O.

Text-book department mathematics 1832 to 1865.—*Report Superintendent U. S. Military Academy*, 1876, pp. 47 and 52, and *Cadet Register*, 1865, p. 25.

516 B. 50 **Biot (J. B.)**: Essai de Géométrie Analytique, appliquée aux courbes et aux surfaces du second ordre . . . Septiéme ed. Paris, 1826. 1 v., O.

Text-book department mathematics 1821 to 1825, and 1825 to [illegible].—*Report Superintendent U. S. Military Academy*, 1896, pp. 28 and 31.

516 B. 67 **Bourdon (M.)**: Application de L'Algebre a la Géométrie . . . Quatriéme ed. Paris, 1837. 1 v., O.

Text-book department mathematics (?).—The copy in the library contains notes that seem to show that this book was used as a text-book.

516 C. 40 **Church (Albert E.)** (U. S. Military Academy, 1828): Elements of analytical geometry. N. Y., 1851. 1 v., O.

Text-book department mathematics, 1852 to 1898.—*Cadet Register*, 1852, p. 21, and 1898, p. 30.

516 D. 20 **Davies (Charles)** (U. S. Military Academy, 1815): Elements of analytical geometry . . . 2d ed. N. Y., 1889. 1 v., O.

Text-book department mathematics, 1839 to 1852.—*Report Superintendent U. S. Military Academy*, 1896, pp. 53 and 55.

516 G. 20 **Garnier (J. G.)**: Géometrie analytique du application de L'Algebre a la Géometrie. Deuxiéme ed. Paris, 1813. 1 v., O.

Text-book department mathematics 1823 to 1824.—*Report Superintendent U. S. Military Academy*, 1896, p. 48.

517 C. 40 **Church (Albert E.)** (U. S. Military Academy, 1828): Elements of the Differential and Integral Calculus. N. Y., 1842. 1 v., O.

Text-book department mathematics 1843 to 1899.—*Cadet Register*, 1843, p. 21, and 1899, p. 30.

517 D. 20 **Davies (Charles)** (U. S. Military Academy, 1815): Elements of the Differential and Integral Calculus . . . 2d ed. N. Y., 1838. 1 v., O.

Text-book department mathematics 1839 to 1842.—*Report Superintendent U. S. Military Academy*, 1896, pp. 54 and 55, and *Cadet Register*, 1842, p. 23.

517 L. 22 **Lacroix (S. F.)**: An elementary treatise on the differential and integral calculus. Cambridge, 1816. 1 v., O.

Text-book department mathematics, 1821 to [illegible].—*Report Superintendent U. S. Military Academy*, 1896, p. 45.

517.2 B. 20 **Bass (Edgar W.)** (U. S. Military Academy, 1868): Introduction to the Integral Calculus. West Point, 1887. 1 v., O.

Text-book department mathematics 1887 to [illegible].—*Cadet Register*, 1887, p. 30.

517.2 B. 20 **Bass (Edgar W.)** (U. S. Military Academy, 1868): Differential Calculus, parts 1 and 2. West Point, 1889. 1 v., O.

Text-book department mathematics, Part I, 1889 to 1896; Part II, 1893 to 1894.—*Report Superintendent U. S. Military Academy*, 1896, p. 64.

517.3 M. 90 **Murray** (**Daniel Alexander**): An Elementary Course in the Integral Calculus. N. Y., 1898. 1 v., O.

Text-book department mathematics, 1900 to (?).—*Cadet Register*, 1900, p. 30.

519 L. 18 **Lacroix S. F.**: Traité Elémentaire de Calcul Différentiel et de Calcul Intégral. Paris, 1820. 1 v., O.

Text-book department mathematics, 1824 to (?).—*Report Superintendent U. S. Military Academy*, 1896, pp. 45 and 46.

519.8 J. 70 **Johnson** (**William Woolsey**): The Theory of Errors and Method of Least Squares . . . 1st ed. N. Y., 1896. 1 v., O.

Text-book department mathematics, 1891. *Cadet Register*, 1891, p. 30.

520 G. 87 **Gummere** (**John**): An elementary treatise on astronomy, in two parts, the first containing a clear and compendious view of the theory, the second a number of practical problems, to which are added solar, lunar, and some other astronomical tables. Phila., 1822. 1 v., O.

Text-book department natural and experimental philosophy, 1834 to 1885.—*Report Superintendent U. S. Military Academy*, 1896, pp. 16 and 18.

520 Y. 70 **Young** (**Charles A.**): A text-book of general astronomy. Boston, 1895. 1 v., O.

Text-book department natural and experimental philosophy, 1889 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 19.

522 **Chauvenet** (**William**): Method of Least Squares. Phila., 1 v., O. [This is a reprint of the Appendix to his Manual of Special and Practical Astronomy (1863).]

Text-book department mathematics, 1879 to 1891.—*Report Superintendent U. S. Military Academy*, 1896, pp. 61 and 64.

522 M. 50 **Michie** (**P. S.**) (U. S. Military Academy, 1863), and **Harlow** (**F. S.**), (U. S. Military Academy, 1879): Practical Astronomy . . . 2 ed. N. Y., 1893. 1 v., O.

Text-book department natural and experimental philosophy, 1881 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 19.

522.7 B. 20 **Bartlett** (**W. H. C.**) (U. S. Military Academy, 1826): Elements of Natural Philosophy; Vol. IV, Spherical Astronomy. N. Y., 1855. 1 v., O.

Text-book department natural and experimental philosophy, 1855 to 1881.—*Report Superintendent U. S. Military Academy*, 1896, pp. 18 and 19.

526.9 D. 17 **Davies** (**Charles**) (U. S. Military Academy, 1815): Elements of Surveying, with the necessary tables. N. Y., 1830. 1 v., O.

Text-book department mathematics, 1839 to 1899.—*Report Superintendent U. S. Military Academy*, 1896, p. 52, and *Cadet Register*, 1899, p. 30.

526.9 J. 71 **Johnson** (**J. B.**): The Theory and Practice of Surveying . . . 16th ed. N. Y., 1902. 1 v., O.

Text-book department mathematics, 1900 to 1902; *text-book department practical military engineering, 1902 to (?).—*Cadet Registers*, 1900, p. 30, and 1902, p. 31.

526.98 R. 30 **Reed** (**Henry A.**) Lieut. U.S. Army (U. S. Military Academy, 1870): Topographical drawing and sketching, including applications of photography. N. Y., 1886. 1 v., Q.

*Text-book department drawing, 1887 to (?).—*Cadet Register*, 1887, p. 30.

530 B. 22 **Bartlett** (**W. H. C.**) (U. S. Military Academy, 1826): Elements of Natural Philosophy. Part II, Acoustics. Part III, Optics. N. Y., 1852. 1 v., O.

Text-book department natural and experimental philosophy, 1852 to 1881.

530 F. 20 **Farrar** (**John**): An elementary treatise on astronomy, adapted to the present improved state of the science. Cambridge, 1827. 1 v., O.

Text-book department natural and experimental philosophy from (?) to 1834.—*Report Superintendent U. S. Military Academy*, 1896, p. 16.

530 H. 20 **Hauy, M. L'Abbé**: Traité Elémentaire de Physique . . . 2d ed. Paris, 1806. 1 v., O.

Text-book department natural and experimental philosophy, 1817 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 15.

530 M. 18 **Martin** (**Benjamin**): The Philosophical Grammar; being a view of the present state of experimental physiology or natural philosophy . . . In four parts. Lond., 1762. 1 v., O.

Text-book department natural and experimental philosophy, April, 1817.—*Partridge MS.*

530 M. 40 **Enfield** (**William**): Institutes of Natural Philosophy, theoretical and practical . . . with some corrections, change in the order of the branches, and the addition of an appendix to the astronomical part, selected from Mr. Ewing's Practical Astronomy, by Samuel Webber . . . 2d Am. ed. Boston, 1811. 1 v., O.

Text-book department natural and experimental philosophy from 1816 to 1818.—*Report Superintendent U. S. Military Academy*, 1896, p. 15, and *Partridge MS.*

530 N. 33 **Newton** (**Isaac**) **Sir:** Mathematical principles of Natural Philosophy . . . Revised and corrected by W. Davis. Lond., 1819. 1 v., O.

Text-book department natural and experimental philosophy, 1818 to ——.—*Report Superintendent U. S. Military Academy*, 1896, p. 16.

Poncelet (**J. V.**): Synthetical Mechanics . . . *tr.* by W. H. C. Bartlett.

Text-book department natural and experimental philosophy, 1850 to 1887.—*Report Superintendent U. S. Military Academy*, 1896, p. 17, and *Cadet Register*, 1887, p. 31.

531 B. 18 **Bartlett** (**W. H. C.**) (U. S. Military Academy, 1826): Elements of Analytical Mechanics . . . 3d ed. N. Y., 1855. 1 v., O.

Text-book department natural and experimental philosophy, 1853 to 1887.—*Report Superintendent U. S. Military Academy*, 1896, pp. 18 and 17.

531 B. 67 **Boucharlat** (**M.**): An elementary treatise on mechanics . . . *tr.* from the French by E. H. Courtenay. N. Y., 1878. 1 v., O.

Text-book department natural and experimental philosophy, 1833 to 1850.—*Report Superintendent U. S. Military Academy*, 1896, pp. 16 and 17.

531 B. 67 **Boucharlat** (**J. L.**): Elémens de Mécanique. Paris, 1827. 1 v., O.

Text-book department natural and experimental philosophy, 1833 to 1850.—*Report Superintendent U. S. Military Academy*, 1896, p. 16.

531 B. 80 **Bridge** (**B.**) **Rev.**: A treatise on Mechanics, intended as an introduction to the study of Natural Philosophy. Lond., 1814. 1 v., O.

Text-book department natural and experimental philosophy, 1824 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 16.

531 F. 80 **Francœur** (**L. B.**): Traité Elémentaire de Mécanique, adopte dans l'instruction publique . . . Quatrième ed. Paris, 1807. 1 v., O.

Text-book department natural and experimental philosophy from (?) to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 16.

531 G. 80 **Gregory** (**Olinthus**): A treatise on Mechanics, theoretical, practical, and descriptive . . . 3d ed. Lond., 1815. 2 v., O.

Text-book department natural and experimental philosophy, 1818 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 15.

531 M. 50 **Michie** (**Peter S.**) (U. S. Military Academy, 1863): Elements of Analytical Mechanics . . . 4th ed. N. Y., 1897. 1 v., O.

Text-book department natural and experimental philosophy, 1883 to (?). The portion of this book relating to Hydrodynamics used as text book department natural and experimental philosophy, 1887 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 17, and *Cadet Register*, 1883, p. 31.

531 M. 50 **Michie** (**P. S.**) (U. S. Military Academy, 1863): Elements of Analytical Mechanics . . . 4th ed. N. Y., 1898, 1 v., O.

Text-book department natural and experimental philosophy, 1887 to 1892. *Cadet Register*, 1887, p. 31, and 1892, p. 31.

534.1 M. 50 **Michie** (**Peter S.**) (U. S. Military Academy, 1863): Elements of wave motion relating to sound and light . . . 2d ed., revised. N. Y., 1886, 1 v., O.

Text-book department natural and experimental philosophy, 1882 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 20, and *Cadet Register*, 1882, p. 32.

535 B. 20 **Bartlett** (**William H. C.**) (U. S. Military Academy, 1826): An elementary treatise on Optics. N. Y., 1839. 2 v., O.

Text-book department natural and experimental philosophy, 1850 to 1852.—*Report Superintendent U. S. Military Academy*, 1896, pp. 17 and 18.

535 B. 79 **Brewster** (**David**) **Sir:** A treatise on Optics. Lond., 1831.

Text-book department natural and experimental philosophy, 1832 to 1839.—*Report Superintendent U. S. Military Academy*, 1896, pp. 16 and 17.

Deschanel (**A. P.**): Heat, Elementary Treatise Natural Philosophy . . . *tr.* by J. D. Everett.

Text-book department chemistry, 1885 to 1887.—*Cadet Registers*, 1885 and 1887, pp. 31.

536 T. 50 **Tillman** (**Samuel E.**) (U. S. Military Academy, 1869): Elementary lessons in heat . . . 2d ed. N. Y., 1892, 1 v., O.

Text-book department chemistry, 1887 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 106.

537 R. 70 **Roget** (**P. M.**): Treatise on Magnetism, Electro-Magnetism and Electro-Dynamics. n. p., n. d., 1 v., O.

Text-book department natural and experimental philosophy, 1839 to 1850.—*Report Superintendent U. S. Military Academy*, 1896, p. 17, and *Cadet Register*, 1850, p. 22.

537 T. 38 **Thompson** (**Sylvanus P.**): Elementary lessons in electricity and magnetism . . . new ed. N. Y., 1901. 1 v., O.

Text-book department chemistry, 1883 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

Library of Useful Knowledge . . . Magnetism, Electro-Magnetism, and Electro-Dynamics.

Text-book department natural and experimental philosophy, from (?) to 1839.—*Report Superintendent U. S. Military Academy*, 1896, p. 17.

538 D. 20 **Davis** (**Daniel**) **Jr.**: Manual of Magnetism, including also Electro-Magnetism, Magneto-Electricity, and Thermo-Electricity. Boston, 1842. 1 v., O.

Text-book department natural and experimental philosophy, 1851 to 1856.—*Cadet Register*, 1851, p. 20, and 1856, p. 21.

540 B. 60 **Bloxham** (**Charles Loudon**): Chemistry, Inorganic and Organic, with experiments . . . 4th ed. Lond., 1880. 1 v., O.

Text-book department chemistry, 1884 to 1897.—*Cadet Registers*, 1884 and 1897, pp. 31.

540 F. 68 **Fownes George**): Elementary Chemistry, Theoretical and Practical . . . edited, with additions, by Robert Bridges. Phila., 1854. 1 v., O.

Text-book department chemistry, 1858 to 1884.—*Report Superintendent U. S. Military Academy*, 1896, p. 105.

540 K. 20 **Kane (Robert, Sir)**: Elements of Chemistry, Theoretical and Practical . . . 2d ed. Dublin, 1849. 1 v., O.

Text-book department chemistry, 1843 to 1858.—*Report Superintendent U. S. Military Academy*, 1896, p. 105.

540 M. 50 **Miller (William Allen)**: Physics of Chemistry [later called Chemical Physics, and after about 1866 called Magnetism and Electricity].

Text-book department chemistry, 1853 to 1883.—*Report Superintendent U. S. Military Academy*, 1896, p. 105.

540 R. 32 **Regnault (M. V.)**: Elements of Chemistry . . . *tr.* from the French by Thomas T. Betton, M. D. Phila., 1852. 2 v., O.

Text-book department chemistry, 1850 to 1858.—*Report Superintendent U. S. Military Academy*, 1896, p. 106.

540 T. 50 **Tillman (Samuel E.)** (U. S. Military Academy, 1869): Descriptive General Chemistry . . . 2d ed. N. Y., 1899. 1 v., O.

Text-book department chemistry, 1897 to (?).—*Cadet Register*, 1898, p. 31.

540 T. 90 **Turner (Edward)**: Elements of Chemistry. Edinburgh, 1827. 1 v., O.

Text-book department chemistry, 1820 to 1830.—*Report Superintendent U. S. Military Academy*, 1896, p. 105.

540 W. 30 **Webster (John W.)**: Manual of Chemistry. Boston, 1826. 1 v., O.

Text-book department chemistry, 1840 to 1843.—*Report Superintendent U. S. Military Academy*, 1896, p. 106.

540.1 (9071) **Tillman (Samuel E.)** (U. S. Military Academy, 1869): Principles of Chemical Philosophy. West Point, 1885. 1 v., O.

Text-book department chemistry, 1885 to 1887.—*Cadet Registers*, 1885 and 1887, pp. 31.

540.7 (9072) **Tillman (S. E.)** (U. S. Military Academy, 1869): Essential Principles of Chemistry . . . West Point, 1888. 1 v., O.

Text-book department chemistry, 1887 to 1897.—*Cadet Registers*, 1888 and 1898, pp. 31.

542 H. 30 **Henry (William)**: Elements of Experimental Chemistry. Phila., 1823. 1 v., O.

Text-book department chemistry, 1820 to 1829.—*Report Superintendent U. S. Military Academy*, 1896, p. 105.

549 C. 60 **Cleaveland (Parker)**: Elementary Treatise on Mineralogy and Geology . . . 2d ed. Boston, 1822. 1 v., O.

Text-book department chemistry, 1820 to 1833 or 1834.—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

549 D. 17 **Dana James D.**): Manual of Mineralogy, including observations on mines, rocks, reduction of ores, etc. New Haven, 1871. 1 v., O.

Text-book department chemistry, 1830 to 1887.—*Report Superintendent U. S. Military Academy*, 1896, p. 104, and *Cadet Register*, 1887, p. 31.

549 D. 22 **Dana (James D.)**: Manual of Mineralogy and Petrography . . . 5th ed. N. Y., 1868. 1 v., O.

Text-book department chemistry, 1888 to 1894.—*Cadet Registers*, 1888 and 1898, pp. 31.

549 T. 50 **Tillman (Samuel E.)** (U. S. Military Academy, 1869): Text-book of Important Minerals and Rocks . . . 1st ed. N. Y., 1900. 1 v., O.

Text-book department chemistry, 1901 to (?).—*Cadet Register*, 1901, p. 32.

550 B. 20 **Bakewell (Robert)**: Introduction to Geology . . . 3d ed. New Haven, 1829. 1 v., O.

Text-book department chemistry, 1833 or 1834 to 1841.—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

550 D. 23 **Dana (James D.)**: Text-book of Geology. Phila., 1864. 1 v., O.

Text-book department chemistry, 1872 to 1882.—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

550 H. 52 **Hitchcock (Charles H.)**: Elementary Geology . . . new ed. N. Y., 1867. 1 v., O.

Text-book department chemistry, 1842 to 1872.—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

550 L. 32 **Le Conte (Joseph)**: Elements of Geology. N. Y., 1891. 1 v., O.

Text-book department chemistry, 1882 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

Tillman (S. E.) (U. S. Military Academy, 1869): Elementary Text-book of Mineralogy.

Text-book department chemistry, 1864 to 1900.—*Cadet Registers*, 1864 and 1900, pp. 31.

550 L. 95 **Lyell (Charles)**: Principles of Geology . . . 5th ed. Lond., 1837. 1 v., O.

Text-book department chemistry, 1841 to 1842.—*Report Superintendent U. S. Military Academy*, 1896, p. 104.

Brown (Eli F.): Eclectic Physiology.

Text-book department chemistry, 1887 to 1891.—*Cadet Registers*, 1887 and and 1891, pp. 31.

612 T. 80 **Tracy (Roger S., M. D.)**: The Essentials of Anatomy, Physiology, and Hygiene . . . new ed. N. Y., 1886. 1 v., O.

Text-book department chemistry, 1892 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 106.

620 M. 20 **Mahan (D. H.)** (U. S. Military Academy, 1824): An Elementary Course of Civil Engineering for the use of Cadets of the U. S. Military Academy . . . new ed. N. Y., 1846, 1 v., O.

Text-book department civil and military engineering, 1841 to 1877.—*Report Superintendent U. S. Military Academy*, 1896, p. 161, and *Cadet Register*, 1877, p. 30.

620 M. 75 **Moseley (Henry)**: The Mechanical Principles of Engineering and Architecture . . . with additions by D. H. Mahan . . . 1st Am., from 2d Lond. ed. N. Y., 1860. 1 v., O.

Text-book department civil and military engineering, 1858 to 1882.—*Report Superintendent U. S. Military Academy*, 1896, p. 132.

620 Sg. 20 **Sganzin (M. J.)**: Programme ou Résumé des Lecons d'un Cours de Constructions . . . Quatrième ed. Paris, 1839. 3 v., O.

Text-book department mathematics, 1823 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 45.

620 Sg. 22 **Sganzin (M. I.)**: An Elementary Course of Civil Engineering . . . *tr.* from the Fr. in 1827 . . . 3d Fr. ed. Boston, 1827. 1 v., O.

Text-book department civil and military engineering, 1819 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 164.

620 W. 40 **Wheeler** (**J. B.**) (U. S. Military Academy, 1855): An Elementary Course of Civil Engineering for the use of Cadets of the U. S. Military Academy. N. Y., 1877. 1 v., O.

Text-book department civil and military engineering, 1878 to (?).—*Cadet Register*, 1878, p. 34.

Mahan (**D. H.**) (U. S. Military Academy, 1824): Lithographic Notes on Machines.

Text-book department civil and military engineering, 1841 to 1878.—*Report Superintendent U. S. Military Academy*, 1896, p. 191, and *Cadet Register*, 1858, p. 17.

Hachette (**J. N. P.**): Traité Elémentaire des Machines.

Text-book department civil and military engineering, 1819 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 160.

744 M. 20 **Mahan** (**D. H.**) (U. S. Military Academy, 1824): Industrial Drawing: comprising the description and uses of drawing instruments, the construction of plane figures, the projections and sections of geometrical solids, architectural elements, mechanism and topographical drawing, with remarks on the method of teaching the subject. N. Y., 1852. 1 v., O.

Text-book department civil and military engineering, 1870 to 1882.—*Report Superintendent U. S. Military Academy*, 1896, p. 132.

808 B. 60 **Blair** (**Hugh**): Lectures on Rhetoric and Belles Lettres . . . to which are added copious questions and an analysis of each lecture by Abraham Mills. N. Y., 1830. 1 v., O.

Text-book department history, geography, and ethics, 1841 to 1861.—*Cadet Register*, 1841, p. 22, and 1861, p. 19.

808 H. 20 **Hart** (**John S.**): A Manual of Composition and Rhetoric. Phila., 1871. 1 v., O.

Text-book department history, geography, and ethics, 1877 to 1878, and department French and English studies and modern languages, 1878 to 1893.—*Report Superintendent U. S. Military Academy*, 1896, p. 144.

808 P. 20 **Parker** (**Richard Green**): Aids to English Composition . . . 20th ed. N. Y., 1858. 1 v., O.

Text-book department ethics, 1860 to 1867.—*Cadet Register*, 1860, p. 18, and 1867, p. 24.

808 W. 50 **Williams** (**William**): Composition and Rhetoric by Practice . . . Revised and enlarged. Boston, 1898. 1 v., O.

Text-book department modern languages, 1893 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 145.

808.5 Sa. 79 **Sargent** (**Epes**): The Standard Speaker, containing exercises in prose and poetry for declamation in schools, academies . . . a treatise on oratory and elocution . . . 1st ed. Phila., 1854. 1 v., O.

Text-book department ethics, 1855 to 1867.—*Cadet Register*, 1855, p. 22, and 1867, p. 24.

842 B. 70 **Bôcher** (**Ferdinand**): College Series of French Plays, with English Notes . . . 5th ed. N. Y., 1864. 1 v., O.

Text-book department French and modern languages, 1872 to (?).—*Report Superintendent U. S. Military Academy*, 1896, p. 139.

843.5 Lh **Sage, Le:** Histoire de Gil Blas de Santillane, Vols. I, II, III, IV. Paris, 1829. 1 v., O.

Text-book department French, 1821 to 1841.—*Report Superintendent U. S. Military Academy*, 1896, p. 138.

909 D. 91 **Duruy (Victor)**: General History of the World . . . *tr.* by E. A. Grosvenor. N. Y., 1898. 1 v., O.

Text-book department law and history, 1900 to [illegible] *Cadet Register*, 1901, p. 32.

909 F. 50 **Fisher (George Park)**: A Brief History of the Nations and of Their Progress in Civilization. N. Y., 1896. 1 v., O.

Text-book department law and history, 1896.—*Cadet Register*, 1896, p. 32.

909 F. 52 **Fisher (George Park)**: Outlines of Universal History, designed as a text-book . . . N. Y., 1885. 1 v., O.

Text-book department law and history, 1885.—*Cadet Register*, 1885, p. 32.

909 M. 95 **Myers (P. V. N.)**: General History. Bost. and Lond., 1892. 1 v., O.

Text book department law and history, 1896 and 1897.—*Report Superintendent U. S. Military Academy*, 1896, p. 150, and *Cadet Register*, p. 32, for 1897.

909 Sw. 50 **Swinton (William)**: Outlines of the World's History, Ancient, Mediæval, and Modern, with special relation to the history of civilization and the progress of mankind. N. Y., 1874. 1 v., O.

Text-book department history, geography, and ethics, 1883 to 1896.—*Report Superintendent U. S. Military Academy*, 1896, p. 150.

909 T. 92 **Tytler (Alexander Fraser)**: Elements of General History, Ancient and Modern, to which are added a table of Chronology, etc. . . . 2d Am. from 5th British ed. Phila., 1813. 1 v., O.

Text-book department history, geography, and ethics, 1820 to 1825.—*Am. State Papers, Military Affairs*, Vol II, pp 661 and *Report of Board of Visitors*, 1821–1825.

909 W. 30 **Weber (George, Dr.)**: Outlines of Universal History, from the creation of the world to the present time . . . *tr.* from the German by Dr. M. Behr . . . 3d ed. Boston, 1854. 1 v., O.

Text-book department history, geography, and ethics, 1856 to 1861.—*Cadet Register*, 1856, p. 22, and 1861, p. 17.

Geography, (by Morse ?) *See* the next entry.

Text-book U. S. Military Academy, 1814 to 1816.—*Partridge MS.*

910 M. 70 **Morse (Jedidiah)**: The American Universal Geography, or a view of the present state of all the Kingdoms, States, and Colonies in the known world . . . 6th ed. Boston, 1812. 1 v., O.

Text-book department geography, history, and ethics, 1820 to 1825 and 1848 to 1867.—*Cadet Register*, 1848, p. 23, and 1867, p. 24, and *Report of Board of Visitors*, 1821–1825.

910 W. 50 **Willetts (Jacob)**: New and Improved School Geography, accompanied by a new and correct atlas . . . 5th ed. Poughkeepsie, 1842. 1 v., O.

Text-book department history, geography, and ethics, 1844 to 1846.—*Cadet Register*, 1844, p. 21, and 1846, p. 21.

911 L. 13 **Labberton (Robert H.)**: Historical Atlas, 3800 B. C. to 1886 A. D. . . . 5th ed. [Title changed to "Universal History" in 1902.] N. Y., 1891. 1 v., O.

* Text-book department history, geography, and ethics, 1885 to 1896, and law and history, 1896 to (?).—*Cadet Register*, 1885, p. 31.

912 **Times Atlas:**

* This book is furnished to Cadets and kept in their rooms during term time since 1902.

912 **Century Atlas:**

* This book is furnished to Cadets and kept in their rooms during term time since 1902.

914.95 B. 25 **Barthélemy** (**J. J.**): Voyage de Jeune Anacharsis en Grèce vers le milieu du IV^e^ siècle avant l'ére vulgaire. Paris, 1848. 1 v., O.

Text-book department French, 1841 to 1847.—*Report Superintendent U. S. Military Academy*, 1870, p. 138, and *Cadet Register*, 1847, p. 23.

C. 916 Extracts from McClellan's Military Commission to Europe.

Text-book department civil and military engineering, 1860.—*Cadet Register*, 1860, p. 17.

973 L. 60 **Lossing** (**Benson J.**): A Pictorial History of the United States. N. Y., 1854. 1 v., O.

Text-book department history, geography, and ethics, 1855 to 1858.—*Cadet Register*, 1855, p. 22, and 1858, p. 19.

1224.105 (By authority.) Cavalry Tactics U. S. Army, assimilated to the tactics of infantry and artillery. N. Y., 1878. 1 v., O.

Text-book department tactics, 1855 to (?).—*Cadet Register*, 1855, p. 20.

1222.821 U. S. Cavalry Drill Regulations.

Text-book department tactics, 1896 to present date.—*Cadet Register*, 1896, p. 31.

1300 Tentative Infantry Drill Regulations.

*Text-book department tactics, 1902 to present date.—*Regulations U. S. Military Academy*, 1902, par. 28.

1332 Manual of Arms.

*Text-book department tactics, 1895 to present date.—*Regulations U. S. Military Academy*, 1895, pars. 28, 42, and 55.

1333 Manual of Guard Duty.

*Text-book department tactics, 1893 to 1901.

——— Revised Manual of Guard Duty.

*Text-book department tactics, 1902 to date.—*Regulations U. S. Military Academy*, pars. 270 and 282.

——— U. S. Army Infantry Drill Regulations.

Text-book department tactics, 1892 to (?).—*Cadet Register*, 1892, p. 31.

——— U. S. Army Drill Regulations.

Text-book department tactics, 1860 to (?).—*Cadet Register*, 1860, p. 18.

——— Tactics; Rules and regulations prescribed for infantry drill service.

Text-book department tactics, from (?) to 1821.—*Report Superintendent U. S. Military Academy*, 1896, p. 124.

1367.90 Extracts from an Infantry Captain's Journal. General Von Arnim—Colonel Wagner.

*Text-book department tactics, 1897 to present date.—*Regulations U. S. Military Academy*, 1897, pars. 28, 29 and 30.

1381.15 **Scott** (**W. S.**), Maj. Gen.: (By authority). Infantry tactics, or rules for the exercise and maneuvers of the U. S. Infantry. N. Y., 1846. 3 v., O.

Text-book department tactics, 1841 to 1870.—*Cadet Register*, 1841, p. 22, and 1870, p. 26.

1381.30 **Upton** (**Emory**) Maj. Gen. (U. S. Military Academy, 1861): (By authority). Infantry tactics, double and single rank, adapted to American topography and improved firearms. N. Y., 1880. 1 v., O.

Text-book department tactics, 1871 to 1891.—*Cadet Register*, 1871, p. 21, and 1891, p. 31.

1366.120 **Beach (Wm. D.)**, Capt. U. S. A. (U. S. Military Academy, 1879): Manual of military field engineering for the use of officers and troops of the line. Fort Leavenworth, 1894. 1 v., O.

Text-book department practical military engineering, 1902 to [illegible].—*Cadet Register*, 1902, p. 31.

1427.30 **Carter (William H.)**, Capt. U. S. A. (U. S. Military Academy, 1873): Horses, Saddles, and Bridles. Leavenworth, Kans., 1895. 1 v., O.

*Text-book department tactics, 1902 to [illegible].—*Cadet Register*, 1902, p. 32.

1434.800 **Fitzwygram (F.)**, Sir: Horses and Stables . . . 3d ed. London, 1886. 1 v., O.

Text-book department tactics, 1876 to [illegible].—*Report Superintendent U. S. Military Academy*, 1896, p. 127.

1486.950 **Youatt (Wm.)**: On the Horse . . . A new edition . . . together with a general history of the horse, and an essay on the ass and the mule. Phila., 1844. 1 v., O.

Text-book department tactics, 1854 to 1861.—*Report Superintendent U. S. Military Academy*, 1896, p. 126, and *Cadet Register*, 1861, p. 18.

1566.12 **Wagner (Arthur L.)** (U. S. Military Academy, 1865): Organization and Tactics. N. Y., 1895. 1 v., O.

Text-book department civil and military engineering, 1899 to (?).—*Cadet Register*, 1899, p. 32.

Gardiner (Asa Bird): Practical Forms for use in Courts-Martial and Head Notes on the Law of Evidence in Courts-Martial, etc.

Text-book department law, 1875 to 1878.—*Report Superintendent U. S. Military Academy*, 1896, and *Cadet Register*, 1878, p. 34.

1658 General Orders, No. 100—A. G. O. (1863.) Washington, 1864. 1 v., O.

Text-book department law, 1879 to 1896.—*Cadet Register*, 1879, p. 34, and 1896, p. 32.

1676.20 **Benét (S. V.)** (U. S. Military Academy, 1849): A Treatise on Military Law and the Practice of Courts-Martial. N. Y., 1862. 1 v., O.

Text-book department history, geography, and ethics, 1863 to 1875.—*Report Superintendent U. S. Military Academy*, 1896, p. 157, and *Cadet Register*, 1863, p. 17, and 1875, p. 28.

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THE GENIUS OF WEST POINT.

By Colonel CHARLES W. LARNED, U. S. Army,
Professor of Engineering, United States Military Academy, United States Military Academy, 1887.

ARTILLERY PRIVATE, 1823.

THE position of West Point among institutions of learning possesses a certain aloofness that separates it, not so much by virtue of any single difference in matter or method, as by a special association of these addressed to a particular end and with a single purpose. To understand West Point and its achievement it must be borne in mind that it is a school of definite purpose and of carefully adjusted methods, rigidly applied. It is perhaps more than any other educational institution *sui generis;* and in its adherence to an organic standard and a characteristic ideal it is more conservative and consistent than any but theological seminaries of the most orthodox type. Its traditions are its strength; while its consistency of operation and singleness of purpose insure a high average standard of attainment within those limitations. They achieve something more—a something whose value is apt to be lost sight of by those who see only in limitation of scope a hampering of the flights of genius and an oppressive restriction of the liberty of *laisser faire* in intellectual attainment. This something is a well-balanced development of the mechanism of thinking based upon a thorough understanding of elementary principles.

The genesis of a great school is a gradual process depending mainly upon principle, personnel, and environment. In all of these the Military Academy has been fortunate. The

basic principles of its purpose and methods; the personality of the men guiding its formation and early operation; its ideal location for its special functions—all have been remarkable and admirable.

It is no small thing for an institution to trace its origin to the vital energy of great struggles and formative epochs and the initiative of heroic men.

West Point derives from George Washington the initial impulse of its existence; and, in the following words from his last annual message to Congress, the reason of its being and development are clearly expressed:—"Whatever arguments may be drawn from particular examples, superficially viewed, a thorough examination of the subject will evince that the art of war is both comprehensive and complicated; that it demands much previous study, and that the possession of it in its most improved and perfect state is always of great moment to the security of a nation."

It is doubly fortunate when to such an origin is added the providential gift of a great organizing mind associated with a character of superlative integrity and poise; and these qualities presided over its formative period in the personality of its great Superintendent, Thayer.

The birth of this school, however, was attended with throes and pangs that threatened its life, and for a period of several years it could without sensible error have been pronounced a miscarriage. Twice it was without graduates; in 1819 it was under the command of a second lieutenant and deprived of supplies of every kind; in 1812, and for some time after, it was without students or instructors. The Secretary of War under Madison—William Eustis—sought to strangle the infant school during this struggle for existence, and only the exigencies of the war of 1812 saved it from his hostile designs. It was again indebted to the stress of war for rescue from its opponents in Congress, who, just before the war with Mexico, had very nearly accomplished its overthrow. The vindication of that conflict, however, was so complete as to silence all hostility, and the great struggle of 1861 added such overwhelming testimony to its worth that no authoritative voice has since been raised against its existence.

That war is a science whose details must be mastered in advance is the lesson that Prussia has twice taught the modern world; and Washington, at the beginning of our national career, saw this clearly, even under the less complex conditions of that day. From this consideration springs the *raison d'être* of the military school; and it is well to bear in mind that, whatever be the policy of this nation as to the size or character of its military establishment, the necessity for the school is paramount. Indeed, the necessity for the school grows greater in proportion as the size of the standing army diminishes. An ideal condition for a republic would be a minimum armed force and a maximum of thorough military instruction in high-grade military schools; a large supply of accomplished officers distributed throughout the land, ready at call to organize and lead the volunteer levies of the nation. At all times of military emergency the great embarrassment has been and will continue to be the lack of trained officers for the handling of such levies. There never will be a lack of men.

It is natural to a strong and self-reliant republic, which has developed aloof from the glitter and clash of modern militarism, to set small store on military matters and to underrate the discipline of military preparation. America has had too much to do on the farm and in the shop to spend much time in soldiering. From 1812 to 1898 it had but one foreign war, and that a little and very one-sided one. Eighteen hundred and sixty-one brought a sharp and stern awakening to the meaning of war on a large scale, but when the great volunteer armies went back to the farms and shops, after the family quarrel was settled, no one had any more taste for soldiering than before; and, as there was nothing to fear from the outside, the military lessons of the war were speedily ignored or forgotten. One of these lessons, which was rather ignored than forgotten, was the value of West Point as a military school of the first rank—of an institution whose record in the struggle was preëminent; of whose sons on both sides 445 wore the stars of a general's rank and held all the chief commands; West Point, which had organized victory in the scientific and supply corps, and which at Appomattox held

on the one side the sword of the victor; and, on the other, the pen of honorable capitulation. And yet there undoubtedly existed among a large body of our citizens a latent consciousness of the worth to these United States of America of the spirit of patriotism, duty, and integrity developed in the small corps of its servants who are nursed to their professional maturity by the Alma Mater in the Hudson Highlands.

The Military Academy is responsible to the Nation and not to the individual, both in its methods and in its results. It must guarantee a standard in its performance that will justify its existence as a national school; and, in consequence, it can not leave to the student an independent initiative in any matter bearing upon his development as a professional soldier. It is a machine in which a heterogeneous mass of raw material is transformed in the short space of four years into a finished product, molded, tested, and stamped with the sterling mark which has come to be recognized the world over. This brand of the Military Academy stands primarily for *character*. It does not mean that the individual is a finished expert in mathematics or engineering, or even in the science of war. It does not mean that he is a perfect automaton in military drill, a superior marksman, a rough rider, or a skilled artillerist. It means that, having had a sound, exacting grounding in all these things and in many more covering the whole field of usefulness of a soldier, he has had also the inestimable seasoning of his moral fiber which results from four years' immersion in an atmosphere of hard work, unsparing criticism, strict personal accountability for every act, large or small; simplicity of life; an exalted ideal of integrity, of duty, of truth telling; a tradition of a century of honor upheld by hundreds of names borne on the pages of his country's story.

In a fundamental respect West Point stands alone among military schools. The continental system is one of separated schools for the different arms of the service, and there is no high-grade general academy educating for all. West Point, however, has always and above all stood for something more—something which the foreign systems have lacked and which we have believed preëminently desirable; something

which it would appear has been well accomplished, and whose superlative worth has been abundantly proved and acclaimed in the achievements of the career of a century and the test of the greatest war of modern times. That something has three constituent principles:

I. Morale. The molding of character by a thorough, consistent, and continued discipline.

II. Mental Discipline. A thorough general training of the rational faculties.

III. The Military University. A general and comprehensive instruction of officers of all arms of the service in the elements of every military branch.

MORALE.

In regard to the first of the principles above enumerated it may be said to be basic, and that the paramount feature of West Point's work is its character developing and forming power. It must stand or fall principally by its achievement in this line of development. The wise purpose of its founders and the trend of its natural evolution have tended to make this feature of its work the dominant one, and the results have shown the production of tone and morale to be the supreme end as well of a military as of all education.

The progress in character development of the Cadet student is clearly defined. The status of the second-year man is as distinct and as much advanced above that of the first-year man as is successively that of his seniors above him in every quality of character, of mind, and of body. It is doubtful if such a metamorphosis as is presented by a comparison of the graduated Cadet with the "plebe" of four years before can be found in any other institution in the world. Erect, vigorous in physique, alert and active, with a mind trained to be thorough and systematic and to take nothing for granted; clean in habits of life, reverencing the truth, with a high sense of responsibility for every act; subordinate and respectful, and with a profound conviction that nothing is impossible so long as he "has the written order in his pocket," the graduate emerges from this four years' apprenticeship to hard work

and unrelenting discipline with all his energies at a maximum of efficiency and his character tempered like a Toledo blade.

The mechanism by which this transformation is effected has, over that of civil institutions, the immense advantages of single mindedness and authority. It aims at a special result for a specific purpose, and it possesses absolute authority for enforcing its methods. To this may be added the powerful leverage given by the fact that the prize of graduation is an honorable office in an honorable profession which bestows rank and competence. Unlike other institutions, it can not be indifferent to the general performance of its students. It exacts of every individual rigid conformity to its standard, and its minimum standard is proficiency in every branch of study taught in its curriculum. It stands *in loco parentis* not only over the mental but the moral, physical and, so to speak, the official man. It dominates every phase of his development, every moment of his academic existence. It becomes responsible for his physical, social, and official being. There is very little of his time over which it does not exercise a close scrutiny, and for which it does not demand a rigid accountability. To the layman this sounds intolerable and tyrannical, and as tending to a mechanical product, deficient in originality and initiative. Under other conditions and an administration less judicious than that formed by the experience of the wise and conscientious founders of its system, this might be true of a process savoring so strongly of Procrustes. As a matter of fact, it makes a "West Pointer;" and perhaps no other institution in the world has so strongly impressed its stamp upon the whole body of its alumni as the West Point Military Academy; while very few have endowed their graduates by their diplomas with a guaranty so universally accepted as *prima facie* evidence of character and high ability.

In its process of character development it possesses the powerful auxiliaries of self-interest and coercion. The candidate for the diploma of the Academy has his profession as well as his education at stake; in its dealings with him it has the autocratic power of military law—the legislative and executive authority of the nation behind it, and it uses both

these forces as unremitting impulses toward the attainment of high ideals of rectitude. It takes small heed of sentiment. It endeavors to keep its decisions unimpaired by those subtle and demoralizing influences which are involved in personal considerations and to hold the individual to strict responsibility for his use of the advantages offered him.

The only proper concern that the institution can have regarding the individual is that of exact and impartial justice. It offers him unusual opportunities and an honorable career: it exacts conformity with certain definite standards: it has no possible interest in his retention as a student other than this conformity; and its function between him and the interests of the nation is a purely judicial one—to decide whether or not he has reached these standards. If he fails, the connection is severed, and there are thousands ready and eager to fill the vacant place. Besides these two underlying forces of self-interest and the discipline of authority there is ever in operation the passive influence of tradition, not less potent in effect if less aggressive in character, which has developed with the growth and penetrated the vital system of the academic training. The atmosphere of West Point is surcharged with this tradition—this belief in its standards and methods. All careers are shaped by the point of view, and in an institution like this, in which a severe discipline controls the activities of the student body, the aspect in which truth and integrity are viewed becomes impressed upon the character—stamped into it, as a matter of fact, with a force that is quite indelible. A graduate may afterwards fall from the standard of his alma mater, but he never loses the impression of her work. The coin is stamped, although the metal may be base. How little base metal has been able to stand the fire and forge of this workshop the record shows—a record I believe unparalleled in the annals of professional education.

The purpose of West Point is to make a soldier who shall be an honorable, courageous, self-reliant, clear-thinking man, having a broad grasp of all the essentials of his profession.

It stands to a certain extent in its relation to the special schools of application as does the college to the professional

schools, in so far as it lays a broad foundation in the fundamentals of each, and aims so to prepare its graduates that, while possessing a firm grasp of the principles of operation of all corps of the Army, they shall be prepared to develop themselves in any special branch to the best advantage and with the greatest economy of time. It acts on the principle that *an officer is more efficient in any corps who is well posted in the technique of every corps*, and that general command and responsibility impose general knowledge and preparation.

The material upon which it works is the most heterogeneous imaginable—youth of good education, poor education, no education at all; from the plow, the office, the machine shop, luxury, destitution, competence; with brilliant, mediocre, or little ability; with high moral development, or with tendencies colored by demoralizing environment; with strict and with lax views of the obligations of truth. From these are to be weeded out the impossible, and of the rest are to be molded men whose temper is up to the standard test, so far as any human standard can be a test. West Point does this and in a way that has made its brand upon its wares recognized and respected the world over. Now and then faulty material will slip through. No human agency can prevent occasional evasion of fixed standards, but the final test is the general result.

The first point in its character-making is *Honor*. The views of rectitude and personal accountability, which have grown into the marrow of the institution, which are fostered by its authorities and have become its sacred code of honor, have a formative power impossible to be understood other than by experience. The Corps itself is the chief custodian and executive of this tradition, and it is this fact that makes it effective. Any code of honor which has its root in coercion lacks vital force, and its imposition carries neither conviction nor reformation. The youth gathered from the four corners of the Republic who come to West Point with many shades of habit and conviction regarding the protean aspects of a lie, are met here at the outset by one principle, uncompromising and stern. All shiftiness and evasion—the whole body of casuistry—must

be "policed" once and for all, for a man caught in a lie is damned—has lost his caste—and the Corps of Cadets is not for him. When this point of view is attained by a body of men, a very healthy and high plane of action has been reached. Hatred of a lie is a splendid disinfectant.

The next point in the ethical scale is, very naturally, *Courage;* which we who know our ethics understand to be divided into physical and moral. West Point demands both. The Corps is strenuous in its insistence upon the physical as a *sine qua non.* The logic of the matter is very simple:—War is Force and all its active situations demand physical bravery; a soldier is the agent of war—therefore he must be physically brave. Moral courage is admirable above physical bravery; but moral courage whose legs run the wrong way, although it may have a high and useful function, has it not on the battlefield. The Corps is, therefore, somewhat exacting in its criteria in this regard, and the Corps is right.

The third point is *Subordination.* The entire existence of the Cadet is one of subordination. From the "plebe" to the Superintendent he is surrounded by a hierarchy of graded responsibility and obligation. An order from a superior has the force of a cannon shot. To resist is not consistent with reason.

The fourth point is *Hard Work* for every one—the unending, uncompromising exactions of duty from reveille to taps. For four years there is no relaxation but a single furlough and the very rare and brief leaves of a day or two at holidays, dependent upon demerit records. Nowhere, except at the national schools, is so much exacted of every individual from first to last. There is no option; every Cadet must exactly perform every military and academic requirement or suffer the penalty; and the high value set upon the diploma of the Academy is shown by the desperate tenacity with which its students struggle to remain. A resignation, except in face of deficiency, is almost unknown.

MENTAL DISCIPLINE—THE CURRICULUM.

The academic course is based upon three fundamentals:

I. *Every man in every subject.*

II. *Every man proficient in everything.*

III. *Every man every day.*

In other words, every Cadet must take the whole course—there are no optional or exceptional studies; every Cadet must attain the standard in everything—deficiency in one subject is deficiency in the course; each Cadet must be prepared to recite every day upon all the subjects of study upon which he is engaged at that time. While all these are adhered to in principle and in practice, there is a slight qualification in each sufficient to give some flexibility of application. In the first, although all go through the same course of study, the highest men in the class go a little further in some subjects. In the second, although proficiency in all subjects is demanded, a Cadet standing well in other studies may, if deficient in one, be allowed to continue and make up a deficiency by the next examination or be turned back to join the next class if, in the judgment of the Academic Board, the conditions warrant this leniency. In the third, although every Cadet is likely to be called upon to recite at every attendance, occasionally he is passed over owing to lack of time. But the escape is so rare that it can never be counted upon, and the necessity for unremitting preparation is as great as though there were no exceptions. The recitations are not merely occasional or scattered questions, but a demonstration of principle at the board or the solution of problems, and are also frequently converted into written examinations either of principles or problems. There are, in addition, the regular semiannual examinations for the determination of proficiency which now are wholly written for the first two years, and largely so for the remaining ones.

At these examinations the burden of proof is upon the Cadet. The general standard of proficiency is 66 per cent. Should his mark for the term in any subject fall below that percentage of the maximum in that subject he is, *ipso facto*, deficient and must justify himself at examination or be dis-

charged. Any form of deception at recitations, besides being practically impossible, is frowned upon by the ethics of the Corps. The student stands absolutely upon his merits.

Each subject of study has a certain weight. The standing of a Cadet in each subject is determined by the total of his marks therein, while his count in the subject is obtained by giving to the head man its maximum count and to each other man the proportional part of that number, to the nearest hundredth, that his final total bears to the final total of the head man. His general standing is determined by the aggregate of his counts in all subjects of study and discipline.

In order that the principle of *every man every day* may be carried out the classes are divided into small sections of from 10 to 14 men, each section having a separate instructor. The student rises or falls in his class by transfer from one section to another, according to his weekly marks. These marks for all recitations are posted every week and each man has accurate knowledge of his status at all times. Study is in quarters during specified hours, and is varied with gymnastic and military duties.

The corner stone of the course is mathematics, and the bulk of the structure is made up of the exact sciences. The exceptions are the languages—English, French, Spanish; Constitutional, International, and Military Law; General History; the professional study of the Art of War, and lectures on Art and Architecture in the otherwise technical course of Drawing.

The course of study as it now stands is so exacting and extended that it demands under these conditions the utmost energies both of students and instructors. The strain is very severe and unrelenting, and the writer has seen, during his service of twenty-eight years, six of his associates break down under it—all in the prime of their faculties; two forced into premature retirement with shattered health, and four dying in harness after heroic struggles against disease. The story of their devoted lives is but little known beyond the scene of their activities; and the members of their shattered households, forced to leave their homes, in the majority of cases in straitened circumstances, have only the

heritage of honor bequeathed by lives of unpretentious devotion to a high ideal of duty.

It is not the function of this paper to treat of the details of the military course of instruction the purpose of which is to familiarize the Cadet with the duties and needs of a private in the ranks by practical experience; to impress indelibly upon his character the habit of discipline; and to train him to the function of command by its repeated exercise.

THE MILITARY UNIVERSITY.

The modern soldier requires, in addition to character and force, a versatility of resource and a wide range of military accomplishment which demand a fair and fundamental knowledge of all branches of his profession. Under advancing conditions this need of breadth of view and professional intelligence is a growing and not a diminishing necessity in military educational methods. The quality of mind and character with which the Military Academy has equipped its graduates in the past has made of them a grade of officers of general intelligence and resourcefulness superior to that of any other similar body of officers in the world—a fact which I believe to be abundantly shown by their record in military history, and generally acknowledged by foreigners who have come in contact with them.

This is not to say that the West Pointer thereby stands in any way preëminent for any of that specialistic knowledge which it is the function of special schools alone to give; but that he has attained, preliminary to any such technical perfection, a general grasp of the military profession, its requirements and interdependent relations, and a conception of the duties of a soldier altogether superior to that which can be acquired in any special course of instruction. Upon this broad ground of attainment can be built to the best advantage all of the various technical superstructures required for the perfect fulfillment of the duties of a separate or scientific branch of the service; and the habits of thought, of study, and of discipline of mind and body acquired in this great preparatory school of the soldier are of inestimable advantage to anyone achieving greater development in special lines, as

well as to each individual as his rank and responsibility increase.

The history of past wars in which graduates of this institution have participated shows that there is always demanded of the American soldier a variety of duties and responsibilities which are inherent in the very character of American institutions and the nature of the service which they impose upon all public servants. The graduates of the Military Academy in all, conspicuously in recent, wars have been called upon to fill every office and to perform every function, both civil and military, which the particular exigencies of the occasion have brought about; and it has been one of the most convincing proofs of the soundness of the general principles upon which the institution is based that, with hardly an exception, these various functions have been filled with the greatest credit to the individual and the highest degree of successful accomplishment.

The three principles just analyzed make West Point unique not alone in results, but in its position as the only existing military university which is antecedent and preparatory to the special professional schools. We have already instituted and in successful operation the special schools for different arms of the service analogous to those of the Continent; and we have, in addition, West Point with all that it stands for in its exalted code of integrity, duty, resourcefulness, self-confidence, discipline of character, and habit of thought. For the making of this broad foundation is needed four years of the influences and work which coöperate to produce it. Not a moment can be spared from these periods of cumulative influence which in each year leave so marked and easily discerned an effect upon the character development of the Cadet.

Four years of constant drill, practical instruction in military operations, and respectful submission to the will of his superiors makes him a soldier in the true meaning of the word. He may or may not have the talents of a great general, but he has at least the instincts of a soldier and a knowledge of the duties and technical requirements of his profession. He has, above all, an understanding of the term *duty*,

which makes it the motive power of his professional life and simplifies for him all complex questions of practical ethics. The motto of his alma mater is the philosophy of his life. To do his *duty*, keep bright his *honor*, and serve faithfully his *country* is the hereditary ideal of every son of West Point.

Military schools belong to the professional and technical class of educational institutions, and derive both their value and character from their special functions. It happens, however, that these functions demand of their personnel a high development of certain qualities of character and mind which are of transcendent importance in the evolution of a fine type of man and citizen; and the widespread tendency to introduce into civil institutions some elements of military instruction is in conformity with a realization of the value to the civilian of these qualities in character development. The superstructure raised upon the basic principle of self-devotion to country is a fabric of real virtues, of importance to the State, society, and the individual. Discipline and regularity of habits; respect for authority; obedience; simplicity of life; truth telling; integrity; personal accountability—these bring vigor, not evil, to society; peace, not combativeness and the disposition of a bully. They evolve dignity; good citizenship, and reverence for law.

It is essentially the genius of West Point to develop these qualities in its personnel, and a century of tradition and evolution has produced this educational mechanism so unique in its operations and results. The record of accomplishment of its graduates in civilian walks alone is altogether phenomenal when considered in connection with the limited number of its alumni and the fact that its primary function is a military one. Their achievements in the military field are even more remarkable, and an examination of its historical statistics will show that no military institution was ever more superbly vindicated by the trial of war than the National School on the Hudson, or has more clearly demonstrated the fitness of its purpose and methods to accomplish proposed ends. It stands to-day foremost among the military schools of the world, of acknowledged preëminence in its field, and with a record of integrity and high command unexcelled by

any. A political creation, deriving its students and financial support from political sources, it has sometimes to defend its integrity at the expense of its popularity, and even of the friendship of the men who legislate upon its existence. But this struggle for the integrity of its methods is vital. Destroy the independence of the Military Academy within its proper jurisdiction, and its power for good is withered. Should the taint of improper political methods—the power of pull and the domination of influence—ever corrupt its blood, the hour of its decadence has sounded. The American people have created and now possess one institution, at least, wherein the criteria of success lie in the individual—the fruit of his honest toil, unaffected by the sinister bias of expediency or exterior personal interests. If there comes a time when they fail to appreciate its worth to them practically and morally, the future will not fail to exact the full price of their mistake. What is said here of the Military Academy is equally true of its younger sister—the Naval Academy at Annapolis. The two Government schools are built on like foundations.

CIVIL RECORD.

On the 16th of March, 1902, the U. S. Military Academy at West Point completed the first century of its existence. The total number of graduates from the institution from 1802 to 1902, inclusive, is 4,121. In 1902 there were 1,945 living, of whom 1,630 were in the Army—1,446 of these being on the active list and 184 retired. The number in civil life was 315. Including the appropriation for the fiscal year ending June 30, 1902, the total appropriations for the support of the Academy for the first century since its foundation aggregate $22,259,274.55 (about the cost for one year of the Regular Army before enlargement), or an average of $222,592.74 per year, and of $5,401.42 per graduate. During this period its sons have served in one civil and four foreign wars, and an almost uninterrupted Indian conflict; in civil life they have held almost every office of honor and trust in the gift of their fellow-countrymen from President of the United States and of the Confederate States, presidents of universities, railroads,

and banks to mayors and legislators, principals of schools and heads of minor corporations. They have been bishops and judges, distinguished clergymen, artists and lawyers, successful physicians, noted scientists, and civil engineers. In foreign lands they have been ambassadors, ministers plenipotentiary, consuls-general, and special envoys.

To its military record reference will be made further on. It will be interesting to dwell for a moment upon some features of its relations and contribution to the civil and productive life of the nation, and to compare the two following tables showing, on the one hand, the sources of its personnel; and on the other, the versatility of resource and adaptability to varied conditions of its graduates.

Summary showing Occupations, and number engaged in each, of Parents of Candidates for admission to the Military Academy, 1842 to 1891, and of Parents of Cadets admitted to the Academy, 1892 to 1899, inclusive.

Accountants	3	Dairymen	2
Agents	62	Detectives	2
Architects	5	Dentists	14
Artists	4	Distiller	1
Auctioneer	1	Dock master	1
Auditor	1	Dock commissioner	1
Author	1	Draftsman	1
Baggagemaster	1	Druggists	13
Bakers	4	Editors	62
Bankers and bank officers	90	Electroplater	1
Barbers	4	Engineers:	
Bookkeepers	18	Civil	13
Brewers	3	Mechanical	10
Brokers	10	Locomotive	3
Builders	2	Stationary	1
Butchers	2	Enlisted men	4
Capitalist	1	Express business	2
Chief of police	1	Farmers and planters	1,149
City marshal	1	Fishing master	1
Clergymen	128	Foreman	1
Clerks	90	Gardeners	3
Clerk of House of Representatives	1	General business	5
Collectors	4	Hatter	1
Commercial travelers	13	Heads of corporations	10
Cutlery commissioner	1	Hotel keepers	55
Conductors	2	Iceman	1
Contractors	38	Importer	1
Cook	1	Inspectors of police	2
Cotton buyer	1	Inspectors of factories	2
County officers	74	Inspector of buildings	1

Insurance business	38
Inventor	1
Jewelers	3
Journalists	8
Justice of the peace	1
Laborers	29
Lawyers and judges	645
Letter carrier	1
Librarians	2
Lithographer	1
Liverymen	15
Lumbermen	20
Manager of engines and boilers	1
Manager of brewery	1
Manager of land company	1
Manager of factory	1
Manufacturers	151
Marble dealer	1
Mechanics	341
Member of city board	1
Members of Congress	32
Member of State Legislature	1
Merchants	722
Merchant tailor	1
Messenger	1
Millers	11
Mining	26
Museum keeper	1
Musicians	2
Musician, band leader	1
Newspaper correspondent	1
Newspaper manager	1
No occupation	191
Nurserymen	6
Officers of the Army	362
Officers of the Navy	59
Officers of volunteers	21
Oil business	2
Overseers	4
Photographers	6
Physicians	367
Pilot	1
Policemen	7
Police justices	2
Politicians	3
Postmasters	5
Presidents of colleges	4
Presidents of insurance companies	3
President of steam heating company	1
President of manufacturing company	1
President of wire mill	1
Printers	12
Professors	27
Proprietor of elevator company	1
Publishers	8
Railroad employees	6
Railroad officers	13
Ranchmen	2
Real estate	37
Restaurant keeper	1
Salesmen	5
Saloonkeeper	1
School teachers	56
Secretaries	14
Ship captains	25
Speculators	10
State officers	27
Steamboatman	1
Steward	1
Stock dealers (cattle)	10
Stocks	1
Stock raisers	6
Superintendent of factory	1
Superintendent of coal and iron company	1
Superintendents of gas works	2
Superintendent of mine	1
Superintendent of prison	1
Superintendent of railroad	1
Superintendents of schools	4
Superintendent of iron work	1
Surveyors	5
Tanners	2
Teamster	1
Theater manager	1
Teacher of music	1
Teacher of garment cutting	1
Undertakers	5
Unknown	39
United States civil officers	85
Wagonmaster	1
Warden of prison	1

Civil occupations of graduates of the U. S. Military Academy to 1903.

President of the United States	1
President of the Confederate States	1
Presidential candidates	3
Vice-Presidential candidates	2
Members of the Cabinet of the United States	4
Ambassador	1

Ministers from the United States to foreign courts	14
Chargés d'affaires from the United States to foreign courts	2
United States consuls-general and consuls	12
Members of the United States Senate and House of Representatives	24
United States civil officers of various kinds	171
Presidential electors	8
Governors of States and Territories	16
Bishop	1
Lieutenant-governors of States	2
Judges	14
Members of State Legislatures	77
Presiding officers of State Senates and Houses of Representatives	8
Members of conventions to form State constitutions	13
State officers of various grades	81
Adjutants, inspectors, and quartermasters-general and chief engineers of States and Territories	29
Officers of State militia	158
Mayors of cities	17
City officers	57
Presidents of universities, colleges, etc	46
Principals of academies and schools	32
Regents and chancellors of educational institutions	14
Professors and teachers	136
Superintendent of Coast Survey	1
Surveyors-general of States and Territories	11
Chief engineers of States	14
Presidents of railroads and other corporations	87
Chief engineers of railroads and other public works	63
Superintendents of railroads and other public works	62
Treasurers and receivers of railroads and other corporations	24
Civil engineers	228
Electrical engineers	5
Attorneys and counselors at law	200
Superior-general of clerical order	1
Clergymen	20
Physicians	14
Merchants	122
Manufacturers	77
Artists	3
Architects	7
Farmers and planters	230
Bankers	18
Bank presidents	8
Bank officers	23
Editors	30
Authors	179
Total	2,371

It will be seen at a glance that no institution in the land, not excepting Congress, is at once so representative of every condition and locality, so purely democratic. It will be observed also that no institution, however liberal, can show a

more plastic conformity to varied conditions and requirements than is shown by this list of distinguished successes in every walk of civil life. It is a convincing refutation of the assertion that a military education unfits for civil functions and occupations.

Dr. John Hurston Finley, president of the College of the City of New York, in an investigation of the question of the value of collegiate education as a factor of success in life—meaning, I presume, by success a considerable degree of recognized eminence in the various careers of the professional and business world—prepared a table whose data are based upon standard biographic dictionaries, giving the percentage of success for the total number of graduates covering varying periods.

This list contained eighteen of our leading universities and colleges, including Harvard, Yale, Columbia, Princeton, Cornell, Dartmouth, the Massachusetts Institute of Technology, and the two national academies. West Point heads the list, with 5.9 per cent, followed by the Naval Academy, 5.5 per cent, and Harvard, 5.5 per cent. It is to be observed that, whereas the estimated period for West Point and Annapolis is only about fifty years, closing with the last century; that for Harvard is from 1636 to 1900, two hundred and sixty-four years, covering a long stretch of time when the country was thinly populated, advanced education very rare, and when, in the more primitive and less complex conditions, a man of education counted for more and received much more deference than now.

From the list of civil occupations of graduates given above, if those in the following list be accepted as indicating a fair degree of success and distinction, there results a total of 446 out of an aggregate of 2,371, or *nearly 19 per cent of success in civil walks alone.*

President of United States	1
President of Confederate States	1
Presidential candidates	3
Vice-Presidential candidates	2
Ambassadors	1
Ministers plenipotentiary	14
Chargé d'affaires	2

United States consuls-general and consuls	12
Members of United States Senate and House	24
Presidential electors	8
Governors of States and Territories	16
Bishops	1
Lieutenant-governors of States and Territories	2
Judges	14
Presiding officers of State senates and houses	8
Members of conventions to form State constitutions	13
Mayors of cities	17
Presidents of universities and colleges	46
Regents and chancellors	14
Superintendent of Coast Survey	1
Surveyors-general	11
Chief engineers of States	14
Presidents of railroads and corporations	87
Chief engineers of railroads and public works	63
Superintendents of railroads and public works	62
Superior-general	1
Bank presidents	8
Total	446

If the attainment of full rank of general officer is accepted as a criterion of success in the military profession, it will be found that the percentage of success is about 11 per cent—448 out of a total of 4,121—as is shown in the tables given further on.

The Engineer Corps of the Army has been since the foundation of the Academy almost wholly composed of graduates of the Academy. Its most important work as a corps has been of a civil nature, connected with the river and harbor improvements and public works. During this period the disbursements by its officers for these works have amounted to $453,000,000, including 1903. Some of the more important of their constructions are here given.

Surveys.—Explorations and surveys of the great Northwest, first surveys for transcontinental railroads, international boundary surveys, and the survey of the Great Lakes.

Light-house construction.—Building Minots Ledge light-house, Boston; Spectacle Reef light-house, Lake Huron; Tillamook Rock light-house, Oregon, and many other light-houses.

River and harbor improvements.—Davis Island Dam, Louisville Canal and locks, Ohio River; Des Moines Rapids Canal,

Mississippi River; Saulte Ste. Marie Canal and locks, Lakes Superior and Huron; Great Kanawha River canalization; the Delaware Breakwater; Hell Gate channel, Hallett Reef and Flood Rock removed; New York Harbor, main entrance, dredging 40-foot channel; Blossom Rock, Shag Rock, Arch Rock removed from San Francisco Harbor; jetties at Charleston, S. C., Cumberland Sound, Ga., and Galveston, Tex.

Buildings, etc., erected.—Washington Monument; Washington Acqueduct; State, War and Navy Department building; the Library of Congress; and the Government Printing Office.

MILITARY RECORD.

Turning to the story of its work in the line of its essential function as a military academy, it will be interesting to inquire how it has justified the purposes of its foundation and the expenditures for its maintenance as a school of war. In this regard its tests have been varied and exacting. How has it met them?

The war of 1812, with Great Britain, found the Academy feeble and struggling for existence against adverse influences. There were at that time but 89 graduates, educated under primitive conditions, and all of junior rank; of these but 65 were in military service. Our few regulars had little or no experience under fire. Of the young graduates serving in the field one-sixth were killed in action; one-fourth were killed or wounded; and one-fifth of the survivors received one or more brevets for distinguished services.

At the outbreak of the Mexican war there were over 500 graduates in the Service. The small Regular Army was mostly officered by them, and the volunteer regiments and battalions were generally under their command, although the highest commands were in the hands of their seniors, the veterans of pre-academic armies. The armies in Mexico won 30 victories against immense odds; took 1,000 cannon and huge quantities of small arms and munitions; captured ten fortified places and conquered a vast country. Of this, General Scott, a nongraduate, the commanding general, said:

"I give it as my fixed opinion that, but for our graduated Cadets, the war between the United States and Mexico might, and probably would,

have lasted some four or five years, with, in its first half, more defeats than victories falling to our share; whereas, in less than two campaigns, we conquered a great country and a peace, without the loss of a single battle or skirmish.

During this period, and up to recent times, the Regular Army (officered until 1861 almost wholly, and since then largely, by graduates) has fought a pioneer war against the fierce nomads of the land. In over 300 fights they have won the progressive boundary of civilization and held it for their brothers of the plow, braving hardship and death in all seasons. Living the best years of their lives in remote frontier posts with rare glimpses of the refinements of civilization; having little reward in sight but a sense of duty done; growing gray in junior grades under the slow promotions of peace conditions; kept poor by the necessities of frequent changes of stations, these exiles in their own land were the guardians of a territory which they did not possess, and the promoters of a great industrial development whose fruit was not theirs.

When the great war of the States burst upon the land it found the Academy, as now, recruited from the four quarters of the Union, and its Cadets representing the convictions and traditions of their homes. The political doctrines of his native State, its traditions and prejudices, were by nature those of the young man. Feeling and contention here ran high and fierce as everywhere else. Even the North was divided against itself. Notwithstanding this, it is a remarkable fact that of the officers of the Army appointed from civil life one-half went with the Confederacy, while only one-fifth of the West Pointers went South; and of those West Pointers from the Southern States one-half remained loyal. One hundred and sixty-two Southern graduates withstood the terrible strain of kin and birth and stood by the flag; while from every other institution and position—the Supreme Bench, the Cabinet, Congress, the agents of the State, and institutions of learning—the Southerners flocked en masse to their native States. So much for the question of fidelity at a time when convictions upon the questions at issue were in good faith and in fierce intensity at variance. Now for the

military aspects of the results. A brief statement will sum up the evidence of the tables subjoined.

At the conclusion of a titanic struggle between an aggregate of about three millions of combatants, all the armies in the field on both sides were commanded by graduates; nearly all the corps; a large majority of the divisions; the staff corps of organization, of supply, and of science of both forces; and many of the brigades. Every important battle of the war was commanded on one or both sides by a graduate—generally both. Out of 60 on the list given below, containing all the very important battles and campaigns, all but 5 were commanded on both sides by graduates. Of the 5 exceptions the Army on one side was commanded by a graduate, and in four of these was victorious. This was the verdict of the end of the conflict after every expedient and personality had been put to the test:

Number of graduates who have become general officers in the Regular and Volunteer armies of the United States	294
Total number of general officers of each grade in the Regular and Volunteer armies of the United States, graduates of the Military Academy:	
Generals	3
Lieutenant-generals	1
Major-generals	85
Brigadier-generals	205
Number of graduates who, during their service as general officers in the U. S. Army—	
Commanded separate armies	24
Commanded army corps	46
Commanded divisions	88
Commanded brigades	105
Number of graduates who were general officers in the Confederate Army	151
Of this number there were—	
Generals	8
Lieutenant-generals	15
Major-generals	40
Brigadier-generals	88
Number of graduates who have become general officers in foreign armies	3
Grand total of general officers, graduates U. S. Military Academy	448

This total is over 11 per cent of the total number of graduates for the first century.

Graduates who have become General Officers in the Regular and Volunteer armies of the United States.

GENERALS.

Grant, Ulysses S.
Sheridan, Philip H.
Sherman, William T.

LIEUTENANT-GENERAL.

Schofield, John M.

MAJOR-GENERALS.

Augur, Christopher C.
Bates, Alfred E.
Bliss, Zenas R.
Buell, Don Carlos.
Buford, John.
Burns, William W.
Burnside, Ambrose E.
Canby, Edward R. S.
Casey, Silas.
Couch, Darius N.
Crook, George.
Curtis, Samuel R.
Custer, George A.
Dana, Napoleon J. T.
Doubleday, Abner.
Emory, William H.
Forsyth, James W.
Foster, John G.
Franklin, William B.
French, William H.
Gibbon, John.
Gillespie, George L.
Gillmore, Quincy A.
Granger, Gordon.
Greene, Francis V.
Griffin, Charles.
Halleck, Henry W.
Hamilton, Charles S.
Hamilton, Schuyler.
Hancock, Winfield S.
Hartsuff, George L.
Hazen, William B.
Heintzelman, Samuel P.
Henry, Guy V.
Hitchcock, Ethan A.
Hooker, Joseph.
Howard, Oliver O.
Humphreys, Andrew A.
Hunter, David.
Kent, J. Ford.
Keyes, Erasmus D.
Kilpatrick, Judson.
Lee, Fitzhugh.
Ludlow, William.
Mansfield, Joseph K. F.
Meade, George G.
Merritt, Wesley.
Mitchel, Ormsby McKnight.
Morell, George W.
McClellan, George B.
McCook, Alexander McDowell.
McDowell, Irvin.
McPherson, James B.
Newton, John.
Ord, Edward O. C.
Parke, John G.
Peck, John J.
Pleasonton, Alfred.
Pope, John.
Porter, Fitz-John.
Reno, Jesse L.
Reynolds, John F.
Reynolds, Joseph J.
Richardson, Israel B.
Rosecrans, William S.
Ruger, Thomas H.
Sedgwick, John.
Slocum, Henry W.
Smith, Andrew J.
Smith, Charles F.
Smith, William F.
Stanley, David S.
Steele, Frederick.
Stevens, Isaac I.
Stoneman, George.
Strong, George C.
Sykes, George.
Thomas, George H.
Warren, Gouverneur K.
Weitzel, Godfrey.
Wheeler, Joseph.
Whipple, Amiel W.
Wilson, James H.
Wood, Thomas J.
Wright, Horatio G.

BRIGADIER-GENERALS

Abercrombie, John J.
Allen, Charles J.
Allen, James.
Allen, Robert.
Alvord, Benjamin.
Ames, Adelbert.
Ammen, Jacob.
Anderson, Robert.
Andrews, George L.
Arnold, Abraham K.
Arnold, Lewis G.
Arnold, Richard.
Averell, William W.
Ayers, Romeyn B.
Baird, Absalom.
Ballance, John G.
Barber, Thomas H.
Barlow, John W.
Barnes, James.
Barnard, John G.
Barry, Thomas H.
Barry, William F.
Bayard, George D.
Bell, J. Franklin.
Bell, William H.
Benét, Stephen V.
Benham, Henry W.
Bliss, Tasker H.
Brannan, John M.
Breck, Samuel.
Brice, Benjamin W.
Brooks, William T. H.
Buchanan, Robert C.
Buckingham, Catharinus P.
Buffington, Adelbert R.
Buford, Napoleon B.
Burton, George H.
Butler, John G.
Carey, Asa B.
Carlin, William P.
Carr, Eugene A.
Carrol, Samuel S.

Carlton, Caleb H.
Carter, William H.
Casey, Thomas L.
Chambers, Alexander.
Cooke, Philip St. George.
Craighill, William P.
Crowder, Enoch H.
Crozier, William.
Cullum, George W.
Cushing, Samuel T.
Davies, Thomas A.
Davidson, John W.
Davis, George B.
Davis, Nelson H.
Delafield, Richard.
Dent, Frederick T.
Duane, James C.
Du Barry, Beekman.
Dyer, Alexander B.
Eaton, Amos B.
Ernst, Oswald H.
Eustis, Henry L.
Farley, Joseph P.
Flagler, Daniel W.
Frank, Royal T.
Fry, James B.
Garrard, Kenner.
Garretson, George A.
Getty, George W.
Gibbs, Alfred.
Gilbert, Charles C.
Gillem, Alvan C.
Gordon, George H.
Granger, Robert S.
Grant, Frederick D.
Greene, George S.
Gregg, David McM.
Griffin, Eugene.
Grover, Cuvier.
Guenther, Francis L.
Hains, Peter C.
Hale, Irving.
Hall, Robert H.
Hardin, Martin D.
Hare, Luther R.
Harker, Charles G.
Hasbrouck, Henry C.
Hascall, Milo S.
Haskin, Joseph A.
Hatch, John P.
Hawkins, John P.
Hays, Alexander.
Hays, William.
Holabird, Samuel B.
Howe, Albion P.
Howze, Robert L.
Hunt, Henry J.
Hunt, Lewis C.
Ingalls, Rufus.
Johnson, Richard W.
Johnston, John A.
Johnston, Joseph E.
Jones, Roger.
Judah, Henry M.
Kautz, August V.
Kelton, John C.
Ketchum, William S.
King, Charles.
King, Rufus.
Lockwood, Henry H.
Long, Oscar F.
Lyon, Nathaniel.
Macfeely, Robert.
Mackenzie, Alexander.
Mackenzie, Ranald S.
Mansfield, Samuel M.
Marcy, Randolph B.
Martindale, John H.
Mason, John S.
Meigs, Montgomery C.
Miller, Marcus P.
Mizner, John K.
Mordecai, Alfred.
Morgan, Charles H.
Morgan, Michael R.
Morton, James St. C.
Morris, William H.
McCall, George A.
McCrea, Tully.
McKean, Thomas J.
McKinstry, Justus.
Naglee, Henry M.
Neill, Thomas H.
Paine, Eleazer A.
Palmer, Innis N.
Patrick, Marsena R.
Paul, Gabriel R.
Pennington, Alexander C. M.
Pitcher, Thomas G.
Phelps, John W.
Plummer, Joseph B.
Poland, John S.
Potter, Joseph H.
Prince, Henry.
Ramsay, George D.
Rawles, Jacob B.
Ricketts, James B.
Ripley, James W.
Robert, Henry M.
Roberts, Benjamin S.
Rodgers, John I.
Roe, Charles F.
Ruggles, George D.
Russell, David A.
Sacket, Delos B.
Sanders, William P.
Sawtelle, Charles G.
Saxton, Rufus.
Scammon, E. Parker.
Seymour, Truman.
Sherman, Thomas W.
Shiras, Alexander E.
Sill, Joshua W.
Sinclair, William.
Slemmer, Adam J.
Smith, Jared A.
Smith, William S.
Stokes, James H.
Stone, Charles P.
Story, John P.
Stoughton, Edwin H.
Sturgis, Samuel D.
Sullivan, Thomas C.
Sully, Alfred.
Terrill, William R.
Thomas, Lorenzo.
Todd, John B. S.
Torbert, Alfred T. A.
Totten, Joseph G.
Tower, Zealous B.
Townsend, Edward D.
Turner, John W.
Tyler, Daniel.
Tyler, Robert O.
Upton, Emory.
Van Cleve, Horatio P.
Van Vliet, Stewart.
Viele, Egbert L.
Vodges, Israel.
Ward, Thomas.
Webb, Alexander S.
Weed, Stephen H.
Weeks, George H.
Wessells, Henry W.
Whipple, William D.
Willcox, Orlando B.
Williams, Robert.
Williams, Seth.
Williams, Thomas.
Wilson, John M.
Woodbury, Daniel P.
Woods, Charles R.
Wright, George.

List of Graduates who attained the grade of General Officers in the Confederate Service.

GENERALS.

Beauregard, P. G. T.
Bragg, Braxton.
Cooper, Samuel.[a]
Hood, John B.
Johnston, Albert S.
Johnston, Joseph E.
Lee, Robert E.
Smith, Edmund K.

LIEUTENANT-GENERALS.

Anderson, Richard H.
Buckner, Simon B.
Early, Jubal A.
Ewell, Richard S.
Hardee, William J.
Hill, Ambrose P.
Hill, Daniel H.
Holmes, Theophilus H.
Jackson, Thomas J.
Lee, Stephen D.
Longstreet, James.
Pemberton, John C.
Polk, Leonidas.
Stewart, Alexander P.
Wheeler, Joseph.

MAJOR-GENERALS.

Bowen, John S.
Crittenden, George B.
Donelson, Daniel S.
Elzey, Arnold.
Field, Charles W.
Forney, John H.
French, Samuel G.
Gardner, Franklin.
Gilmer, Jeremy F.
Gracie, Archibald.
Heth, Henry.
Huger, Benjamin.
Johnson, Bushrod R.
Johnson, Edward.
Jones, David R.
Jones, Samuel.
Lee, Fitzhugh.
Lee, G. W. Custis.
Lomax, Lunsford L.
Lovell, Mansfield.
Magruder, John B.
Marmaduke, John S.
Maury, Dabney H.
Maxey, Samuel B.
McCown, John P.
McLaws, Lafayette.
Pegram, John.
Pender, William D.
Pickett, George E.
Ramseur, Stephen D.
Ransom, Robert.
Smith, Gustavus W.
Smith, Martin L.
Stevenson, Carter L.
Stuart, James E. B.
Van Dorn, Earl.
Walker, W. H. T.
Whiting, William H. C.
Wilcox, Cadmus M.
Withers, Jones M.

BRIGADIER-GENERALS.

Adams, John.
Alexander, E. Porter.
Anderson, George B.
Anderson, Joseph R.
Anderson, Robert H.
Archer, John.
Bagby, Arthur P.
Baker, Lawrence S.
Barton, Seth M.
Beall, Wm. N. R.
Bee, Barnard E.
Blanchard, Albert G.
Boggs, William R.
Bryan, Goode.
Buford, Abraham.
Cabell, William L.
Chambliss, John R.
Chilton, Robert H.
Cocke, Philip St. G.
Cosby, George B.
Cumming, Alfred.
Daniel, Junius.
Davidson, Henry B.
Deshler, James.
D'Lagnel, Julius A.
Drayton, Thomas F.
Duncan, Johnson K.
Evans, N. George.
Ferguson, Samuel W.
Frazer, John W.
Frost, Daniel M.
Gardner, William H.
Garnett, Richard B.
Garnett, Robert S.
Gatlin, Richard C.
Gorgas, Josiah.
Grayson, John B.
Harris, David B.
Hawes, James M.
Helm, Ben Hardin.
Hébert, Louis.
Hebert, Paul O.
Jackson, William H.
Jones, John M.
Jones, William E.
Jordan, Thomas.
Lawton, Alexander R.
Leadbetter, Danville.
Long, Armistead L.
Lyon, Hylan B.
Mackall, William W.
Maclay, Robert P.
Major, James P.
Marshall, Humphrey.
Martin, James G.
Mercer, Hugh W.
Mouton, John J. A. A.
Moore, John C.
Myers, Abraham C.
Nicholls, Francis R. T.
Pearce, N. Bartlett.
Pendleton, William N
Rains, Gabriel J.
Rains, George W.
Randal, Horace.
Reynolds, Alexander W.

[a] Adjutant and inspector-general.

Ripley, Roswell S.
Robertson, Beverley H.
Ross, Reuben R.
Ruggles, Daniel.
Sears, Claudius W.
Shoup, Francis A.
Sibley, Henry H.
Smith, James A.
Smith, William D.
Steele, William.
Steuart, George H.
Stevens, Walter H.
Tilghman, Lloyd.
Trapier, James H.
Trimble, Isaac R.
Thomas, Bryan M.
Villepigue, John B.
Walker, Henry H.
Walker, Lucius M.
Wayne, Henry C.
Winder, Charles S.
Winder, John H.

Important battles of the Civil War, with names of Commanders and the Forces Engaged on both sides.

NOTE.—The names marked with an asterisk are those of graduates.

Battle.	Date.	Union commander.	Force.	Confederate commander.	Force.
	1861.				
Bull Run	July 21	Irvin McDowell*	28,452	J. E. Johnston* P. G. T. Beauregard*	32,232
Wilson Creek	Aug. 10	Nathaniel Lyon*	5,400	Ben. McCulloch	11,000
	1862.				
Fort Donelson	Feb. 12–16	U. S. Grant*	27,000	John B. Floyd	21,000
Pea Ridge	Mar. 7	S. R. Curtis*	11,250	Earl Von Dorn*	14,000
Shiloh	Apr. 6, 7	U. S. Grant*	62,682	A. S. Johnston* P. G. T. Beauregard*	40,335
Williamsburg	May 4, 5	Geo. B. McClellan*	40,768	J. E. Johnston*	31,823
Fair Oaks	May 31–June 1	do	41,797	do	41,816
Mechanicsville	June 26	do	18,031	Robert E. Lee*	16,356
Gaines's Mill	June 27	do	34,214	do	57,018
Peach Orchard, Malvern Hill.	June 29–July 1	do	83,315	do	86,748
Seven days' battles	June 25–July 1	do	91,169	do	95,481
Cedar Mountain	Aug. 9	John Pope*	8,030	"Stonewall" Jackson*	16,868
Manassas and Chantilly.	Aug. 27–Sept. 2	do	75,696	Robert E. Lee*	48,527
South Mountain	Sept. 14	Geo. B. McClellan*	28,480	do	18,714
Antietam	Sept. 16, 17	do	75,316	do	51,844
Corinth	Oct. 3, 4	W. S. Rosecrans*	21,147	Earl Von Dorn*	22,000
Perryville	Oct. 8	Don C. Buell*	37,940	Braxton Bragg*	16,000
Fredericksburg	Dec. 13	A. E. Burnside*	100,007	Robert E. Lee*	72,497
Chickasaw Bayou	Dec. 27–29	W. T. Sherman*	30,720	J. C. Pemberton*	13,792
Stone River	Dec. 31	W. S. Rosecrans*	41,400	Braxton Bragg*	34,732
	1863.				
Chancellorsville	May 1–4	Joseph Hooker*	97,382	Robert E. Lee*	57,352
Champion Hill	May 16	U. S. Grant*	29,573	J. C. Pemberton*	20,000
Vicksburg	May 22	do	45,550	do	22,301
Port Hudson	May 27	Nathaniel Banks	13,000	Franklin Gardner*	4,172
Do	June 14	do	6,000	do	5,487
Gettysburg	July 1–3	Geo. G. Meade*	83,289	Robert E. Lee*	75,054
Fort Wagner	July 18	Quincy A. Gillmore*	5,264	P. G. T. Beauregard*	1,785
Chickamauga	Sept. 19, 20	W. S. Rosecrans*	58,222	Braxton Bragg*	66,326
Chattanooga	Nov. 23–25	U. S. Grant*	56,359	do	46,165
Mine Run	Nov. 27–Dec. 1	Geo. G. Meade*	69,613	R. E. Lee*	44,426
	1864.				
Wilderness and Spottsylvania.	May 5–12	U. S. Grant*	88,892	do	61,025
Wilderness	May 5–7	do	101,895	do	61,025
Spottsylvania	May 10	do	37,822	do	(†)
Do	May 12	do	65,785	do	(†)

* Graduate of Military Academy. † Unknown.

Important battles of the Civil War, with names of Commanders and the Forces Engaged on both sides—Continued.

Battle.	Date.	Union commander.	Force.	Confederate commander.	Force.
	1864				
Drewrys Bluff	May 12–16	B. F. Butler	15,800	P. T. Beauregard*	18,025
Atlanta campaign	May	W. T. Sherman*	110,123	J. E. Johnston*	66,089
Cold Harbor	June 1–3	U. S. Grant*	107,007	R. E. Lee*	(†)
Petersburg	June 15–18	U. S. Grant*	63,797	R. E. Lee*	41,499
The Mine	July 30	do	20,708	do	11,466
Deep Bottom	Aug. 14–19	do	27,974	do	20,008
Weldon Railroad	Aug. 18–21	do	20,289	do	14,787
Kenesaw Mountain	June 27	W. T. Sherman*	16,225	J. E. Johnston*	17,733
Tupelo	July 13–15	A. T. Smith*	14,000	S. D. Lee*	6,000
Peach Tree Creek	July 20	W. T. Sherman*	20,139	J. B. Hood*	18,832
Atlanta	July 22	do	30,477	do	30,934
Do	July 28	do	13,226	do	18,450
Jonesboro	Aug. 31	do	14,170	do	23,811
Do	Sept. 1	do	20,460	do	12,661
Winchester	Sept. 19	Phil Sheridan*	37,711	J. A. Early*	17,103
Chaffin's farm	Sept. 29, 30	U. S. Grant*	19,639	R. E. Lee*	10,836
Cedar Creek	Oct. 19	Phil Sheridan*	30,829	J. A. Early*	18,410
Boydton Plank Road	Oct. 27, 28	U. S. Grant*	42,823	R. E. Lee*	20,324
Franklin	Nov. 30	J. M. Schofield*	27,939	J. B. Hood*	26,897
Nashville	Dec. 15, 16	George H. Thomas*	49,773	do	23,207
	1865				
Fort Fisher	Jan. 15	A. Terry	9,632	W. H. C. Whiting*	7,800
Hatchers Run	Feb. 5–7	U. S. Grant*	34,517	R. E. Lee*	13,835
Bentonville	Mar. 19	W. T. Sherman*	19,127	J. E. Johnston*	16,805
Appomattox campaign	Mar. 29–Apr. 5	U. S. Grant*	114,826	R. E. Lee*	49,496
Dinwiddie	Mar. 29–31	do	45,247	do	20,030
Petersburg	Apr. 2	do	63,299	do	19,652

*Graduate of Military Academy. †Unknown.

The outbreak of the Spanish war found the senior positions in the Regular Army held by nongraduates, brave men and splendid soldiers, whose school had been the civil war, followed by more than thirty years of frontier service. The graduates of high rank had all passed out except one. All of the staff corps except the scientific ones were commanded by nongraduates, and their senior officers were of the same class. The principal commands fell, therefore, into their hands, and it was left to the graduates to distinguish themselves as line officers, regimental commanders, and staff officers, which they have not failed to do. Captains and lieutenants have taken regimental commands, and one, but recently a captain of cavalry, has won by heroism and ability in Cuba and in the Philippines the star of brigadier-general in the Regular Army; another, a major of subsistence, by marked ability in

reorganizing the customs service of the island, attained the same rank. Still another received a testimonial from citizens of Cuba for his high fidelity to trust, as treasurer in the civil government, in the disbursing of public funds to the amount of many millions.

In Cuba and the Philippines they have acted as governors of provinces; mayors of cities and towns; collectors and organizers of revenue; treasurers and disbursing officers; chief engineers of cities; sanitary and constructive engineers; superintendents of education; railroad engineers; superintendents of railroads; medical officers, in the absence of professional surgeons; directors of transport service; architects and building constructors; surveyors. These various functions were not rare or exceptional but frequent; and were performed, not alone, or even principally by officers of the scientific staff, but by young officers of the Line, and for considerable periods of time.

A captain of infantry had under his charge the surveys of a large district with many native assistants largely instructed by him, as well as the design and construction of important buildings and engineering works. Another officer of infantry—a lieutenant—using only native labor taught by himself, built 27 bridges, stone-arch and truss, varying in length from 30 to 150 feet, and more than 50 miles of highway. The same officer mapped a large district, repaired broken locomotives, and performed in addition the duties of staff officer. A lieutenant of cavalry was chief engineer of a city.

The work of young graduates at Santiago, in the organization camps, in delicate and hazardous duties of scouting and reconnaissance, is well known to their commanders.

At the outbreak of the Spanish war a captain and assistant adjutant-general of volunteers, disguised as a stoker in a steamship, inspected the fortifications of San Juan in Porto Rico and secured valuable information. A captain of infantry crossed the Caribbean Sea in an open boat and was the first United States Army officer to land in Cuba after the declaration of war with Spain, returning by the north coast of Cuba with valuable information. Later, when lieutenant-colonel of volunteers, in company with a lieutenant of artillery, he

penetrated into the interior on reconnaissance duty, covering some 2,000 miles under circumstances of great difficulty and hardship. A captain of infantry on staff duty before Santiago made, while in the trenches under fire during the drenching rains, a military sketch of the entire front occupied by the enemy, showing the position and strength of batteries and entrenchments and the topographical configuration of the country, which was of the highest value to the general commanding. These are only a few of similar acts performed and responsibilities assumed during this period by graduates, and are cited as illustrations of their versatility of resource and adaptability to varying conditions.

Although the Spanish war was but a brief episode, with only a feeble resistance, it cost the lives of fifteen graduates killed in action, besides deaths from disease. In the Philippines they have been present in over 500 actions and skirmishes, and have lost up to the present time nineteen officers in action, besides many who have died of disease. The aggregate of deaths of graduates of the Military Academy from battle and disease incident to active service in the field during the Spanish war and hostilities in the Philippines up to the date of publication is seventy-six. In the two wars they have served in every grade from major-general down to second lieutenant and were to be found on the staff of every commander in the field. They still form the entire personnel of the two scientific corps—the Engineers and the Ordnance—with the exception of two officers of ordnance.

The designing and building of all the seacoast fortifications of the United States, involving a disbursement of $115,000,000, has been the chief military work of the Corps of Engineers.

The Ordnance Department has been distinctively a graduate corps, 155 of the 166 officers commissioned in it since 1832 having graduated at the Military Academy.

The work accomplished by it has always kept the country abreast of the most advanced nations of the world in all that pertains to armament and ordnance supply throughout the several wars and expeditions in which we have become engaged.

The total expenditures for military purposes, all of which have been made without loss to the Government, have amounted to about $372,000,000.

Several splendid manufacturing establishments have been planned and built up in various parts of the country by its officers—Watertown, Springfield, Watervliet, Frankford, and Rock Island.

Rock Island, the most extensive of the arsenals, represents an investment for plant of more than $10,000,000, and there is actual and full value to show for the expenditure. It has been built up to its present efficient state by the administrative ability of seven officers of the Department and has the capacity to turn out yearly more than $3,000,000 worth of ordnance stores of all kinds. Worked to its full capacity, equipments can be manufactured to furnish current supplies for an army of 750,000 men.

Watervliet Arsenal has been almost entirely rebuilt in the past fifteen years. It is the site of the Army Gun Factory. The establishment, organization, and successful conduct of this factory constitutes one of the specially creditable performances of the Department. The principal shop is the seacoast-gun factory, about 1,200 feet long and 130 feet wide, containing the enormous machinery required for the heavy, careful, and refined work necessary in gun construction. In these shops are applied the theoretical deductions, worked out by officers of the Department, giving the guns the strength which permits the development of high power. About 800 cannon of all calibers, from the 3-inch field piece to the 16-inch seacoast gun, have been turned out from these shops, without subsequent development of weakness in any single case.

Watertown Arsenal is the principal factory for seacoast gun carriages, where all type and some service carriages are manufactured, and the standards for work done under contract established. The 500-ton United States testing machine is located at this arsenal. A very great amount of investigative work, in the qualities of metals and of structural materials generally, is conducted here, the results of which guide and

modify the designs of engineers and architects. Tests made with this machine are accepted as standard and conclusive in all departments of the Government, and also throughout the business world. A well-equipped chemical laboratory is an important adjunct to the testing department.

Springfield Armory has always been the principal, and for many years the only, Government manufactory for small arms, rifles, carbines, and swords. This small-arm plant has coexisted with the Department, and has been added to from time to time as the necessities of the country required.

Frankford Arsenal, in the suburbs of Philadelphia, produces the small-arms cartridges, shrapnel projectiles, fuses, and primers of all classes for service. This busy factory is one of the oldest of those established by the Government and its output has always been standard for the class of work done.

Other important achievements of the officers of the Department have been in general in working out results through patient and properly directed scientific investigations and deduction. Some of these which are specially noteworthy are:

The first application of correct principles to the manufacture of cast cannon.

The pioneer determination of the proper graining of gunpowder.

Important and valuable investigations in ballistics.

The designing and production of single-loading and magazine small arms of special excellence.

The development of trustworthy high explosives.

The deduction of the practical working formula to be applied in the manufacture of built-up cannon.

The design of nearly all the gun carriages used in service.

The development of rotating devices for both muzzle and breech loading rifle projectiles, and fuses of all classes.

The work accomplished by the Department and the results of its investigations have been in various ways of great value to the technical professions and business world, especially in establishing and requiring the attainment of high standards of excellence in manufacture, and in pointing out the proper

direction for improvements. Several instances have occurred where individuals have freely attributed the success of their business to the insistence of inspecting officers upon these high standards of excellence; and manufacturing concerns have also acknowledged their indebtedness for improvements in their commercial product to what had been learned in meeting the Department's requirements. The practical formulæ deduced and the results of the investigations have a wide application in many of the manufacturing industries.

GRADUATES KILLED IN ACTION OR WHO HAVE DIED OF WOUNDS THERE RECEIVED.

WAR OF 1812 TO 1815.

1. James Gibson.
2. H. A. Hobart.
3. S. B. Rathbone.
4. George Ronan.
5. W. W. Smith.
6. A. J. Williams.
7. E. D. Wood.

MEXICAN WAR.

1. J. W. Anderson.
2. William Armstrong.
3. G. W. Ayers.
4. J. D. Bacon.
5. P. N. Barbour.
6. Calvin Benjamin.
7. J. E. Blake.
8. J. G. Burbank.
9. J. H. K. Burgwin.
10. M. J. Burke.
11. W. T. Burwell.
12. E. A. Capron.
13. T. L. Chadbourne.
14. Henry Clay.
15. R. M. Cochran.
16. C. B. Daniels.
17. Rankin Dilworth.
18. S. H. Drum.
19. Thomas Easley.
20. R. F. Ernst.
21. J. T. Farry.
22. G. P. Field.
23. Levi Gantt.
24. R. H. Graham.
25. W. M. Graham.
26. T. C. Hammond.
27. Robert Hazlitt.
28. Charles Hoskins.
29. Z. M. P. Inge.
30. J. F. Irons.
31. D. S. Irwin.
32. A. R. Johnston.
33. J. P. Johnstone.
34. G. T. Mason.
35. Henry McKavett.
36. W. R. McKee.
37. M. E. Merrill.
38. C. F. Morris.
39. L. N. Morris.
40. J. A. Richey.
41. Randolph Ridgely.
42. Samuel Ringgold.
43. A. H. Rodgers.
44. M. L. Shackleford.
45. E. K. Smith.
46. J. P. Smith.
47. E. B. Strong.
48. J. R. Vinton.
49. W. G. Williams.
50. J. S. Woods.

INDIAN WARS.

1. J. K. Allen.
2. Jacob Almy.
3. W. E. Basinger.
4. F. J. Brooke.
5. H. A. Burchstead.
6. E. R. S. Canby.
7. E. W. Casey.
8. J. P. Center.
9. S. A. Cherry.
10. Arthur Cranston.
11. G. A. Custer.
12. J. H. French.
13. G. W. Gardiner.
14. Wm. Gaston.
15. J. L. Grattan.
16. J. W. Gunnison.
17. G. M. Harris.
18. M. P. Harrison.
19. H. M. Harrington.
20. Richard Henderson.
21. B. H. Hodgson.
22. Wm. Hulbert.
23. J. F. Izard.
24. J. L. Keais.
25. W. H. Lewis.
26. J. D. Mann.
27. J. E. Maxwell.
28. J. A. McKinney.
29. David Moniac.
30. R. R. Mudge.
31. J. E. Porter.
32. S. M. Rains.
33. Edmund Russell.
34. Walter Sherwood.
35. W. A. Slaughter.
36. H. W. Stanton.
37. R. T. Stewart.
38. James Stuart.
39. J. G. Sturgis.
40. O. H. P. Taylor.
41. A. R. Thompson.
42. T. T. Thornburgh.
43. Cornelius Van Camp.
44. Joseph Van Swearingen.
45. G. D. Wallace.
46. W. H. Warner.
47. J. M. Wilcox.
48. W. B. Weir.
49. Franklin Yeaton.

CIVIL WAR.

1. John Adams.
2. G. B. Anderson.
3. G. D. Bailey.
4. G. N. Bascom.
5. G. D. Bayard.
6. R. F. Beckham.
7. B. E. Bee.
8. C. H. Brightly.
9. R. H. Brewer.
10. R. P. Campbell.
11. S. D. Carpenter.
12. J. R. Chambliss.
13. C. R. Collins.
14. C. E. Cross.
15. A. H. Cushing.
16. Junius Daniel.
17. B. F. Davis.
18. H. V. De Hart.
19. James Deshler.
20. J. E. Dimick.
21. Joseph Dixon.
22. A. H. Dutton.
23. J. P. Gareschè.
24. R. B. Garnett.
25. R. S. Garnett.
26. Archibald Gracie.
27. J. T. Greble.
28. C. G. Harker.
29. Alexander Hays.
30. G. W. Hazzard.
31. C. E. Hazlett.
32. B. H. Helm.
33. A. P. Hill.
34. E. B. Holloway.
35. T. J. (Stonewall) Jackson.
36. A. S. Johnston.
37. J. M. Jones.
38. R. T. Jones.
39. W. E. Jones.
40. W. G. Jones.
41. H. W. Kingsbury.
42. Edmund Kirby.
43. C. C. Lee.
44. Nathaniel Lyon.
45. W. T. Magruder.
46. J. K. F. Mansfield.
47. S. S. Marsh.
48. W. W. McCreery.
49. James McIntosh.
50. Samuel McKee.
51. O. K. McLemore.
52. J. B. McPherson.
53. J. F. McQuesten.
54. Alexander McRae.
55. J. R. Meigs.
56. J. T. Mercer.
57. D. S. Miles.
58. Lyman Mishler.
59. J. St. C. Morton.
60. J. J. A. A. Mouton.
61. Edgar O'Connor.
62. P. H. O'Rorke.
63. C. E. Patterson.
64. John Pegram.
65. W. D. Pender.
66. Leonidas Polk.
67. Curran Pope.
68. H. S. Putnam.
69. S. D. Ramseur.
70. Horace Randal.
71. J. L. Reno.
72. J. F. Reynolds.
73. L. L. Rich.
74. I. B. Richardson.
75. R. R. Ross.
76. D. A. Russell.
77. George Ryan.
78. W. P. Sanders.
79. J. A. Sanderson.
80. John Sedgwick.
81. J. W. Sill.
82. S. G. Simmons.
83. J. R. Smead.
84. J. L. K. Smith.
85. I. I. Stevens.
86. Roderick Stone.
87. G. C. Strong.
88. J. E. B. Stuart.
89. J. J. Sweet.
90. W. R. Terrill.
91. F. J. Thomas.
92. Lloyd Tilghman.
93. O. H. Tillinghast.
94. O. G. Wagner.
95. W. H. T. Walker.
96. S. H. Weed.
97. W. H. C. Whiting.
98. A. W. Whipple.
99. Charles Wickliffe.
100. Solomon Williams.
101. Thomas Williams.
102. C. S. Winder.
103. G. A. Woodruff.
104. P. T. Wyman.

WAR WITH SPAIN.

1. J. N. Augustin, Jr.
2. E. N. Benchley.
3. Clarke Churchman.
4. W. M. Dickinson.
5. James Fornance.
6. A. G. Forse.
7. J. A. Gurney.
8. H. A. Lafferty.
9. L. H. Lewis.
10. D. M. Michie.
11. C. W. Rowell.
12. W. A. Sater.
13. W. E. Shipp.
14. W. H. Smith.
15. T. A. Wansboro.

FILIPINO INSURRECTION.

1. Thomas W. Connell.
2. Alfred W. Drew.
3. Woodbridge Geary.
4. G. J. Godfrey.
5. J. C. Gregg.
6. H. Y. Grubbs.
7. Benjamin M. Hartshorne, Jr.
8. M. G. Krayenbuhl.
9. Walter H. Lee.
10. H. J. McGrath.
11. John Morrison, Jr.
12. W. L. Murphy.
13. M. B. Saffold.
14. E. D. Smith.
15. Anton Springer, Jr.
16. J. M. Stotsenburg.
17. R. B. Wallace.
18. H. N. Way.
19. William H. Wilhelm.
20. David P. Wheeler.

GRADUATES OF THE MILITARY ACADEMY WHO HAVE RECEIVED THE THANKS OF CONGRESS.

There have been but 22 officers of the Army who have received the thanks of Congress, and of these 11 were graduates of the Military Academy. One graduate in addition to these received the thanks of the House of Representatives. A number have received the thanks of State Legislatures. Of the 22 thanked by Congress, 6 were for service in the war of 1812, 3 for the Mexican war, and 13 for the civil war. The 11 graduates who received this distinction, all for service in the civil war, are:

AMBROSE E. BURNSIDE. Joint resolution of January 28, 1864: "That the thanks of Congress be, and they hereby are, presented to Major-General Ambrose E. Burnside, and through him to the officers and men who have fought under his command, for their gallantry, good conduct, and soldierly endurance."

ULYSSES S. GRANT.—Joint resolution of December 17, 1863: "That the thanks of Congress be, and they hereby are, presented to Major-General Ulysses S. Grant, and through him to the officers and soldiers who have fought under his command during this rebellion, for their gallantry and good conduct in the battles in which they have been engaged."

WINFIELD S. HANCOCK.—Joint resolution of April 21, 1866: "That in addition to the thanks heretofore voted by joint resolution, approved January twenty-eighth, eighteen hundred and sixty-four, to Major-General George G. Meade, Major-General Oliver O. Howard, and to the officers and soldiers of the Army of the Potomac for the skill and heroic valor which at Gettysburg repulsed, defeated, and drove back broken and dispirited the veteran army of the rebellion, the gratitude of the American people and the thanks of their representatives in Congress are likewise due, and are hereby tendered, to Major-General Winfield S. Hancock for his gallant, meritorious, and conspicuous share in that great and decisive victory."

JOSEPH HOOKER.—Joint resolution of January 28, 1864: "That the gratitude of the American people and the thanks of their representatives in Congress are due, and are hereby tendered, to Major-General Joseph Hooker and the officers and soldiers of the Army of the Potomac for the skill, energy, and endurance which first covered Washington and Baltimore from the meditated blow of the advancing and powerful army of rebels led by General Robert E. Lee, * * * and for the skil land heroic valor which at Gettysburg repulsed, defeated, and drove back broken and dispirited beyond the Rappahannock the veteran army of the rebellion."

OLIVER O. HOWARD.—Joint resolution of January 28, 1864: "That the thanks of the American people and the thanks of their representatives in Congress are due, and are hereby tendered to * * * Major-General Oliver O. Howard, and the officers and soldiers of that army, for the skill and heroic valor which at Gettysburg repulsed, defeated, and drove back, broken and dispirited, beyond the Rappahannock, the veteran army of the rebellion."

NATHANIEL LYON.—Joint resolution of December 24, 1861: "That Congress deems it just and proper to enter upon its records a recognition of the eminent and patriotic services of the late Brigadier-General Nathaniel Lyon. The country to whose service he devoted his life will guard and preserve his fame as a part of its own glory."

GEORGE B. MCCLELLAN.—Thanks of the House of Representatives: "That the thanks of the House be presented to Major-General George B. McClellan, and the

officers and soldiers of his command, for the series of brilliant and decisive victories achieved on the battlefields of West Virginia."

GEORGE G. MEADE.—Joint resolution of January 28, 1864: "That the thanks of the American people and the thanks of their representatives in Congress are due, and are hereby tendered, to * * * Major-General George G. Meade and the officers and soldiers of that army, for the skill and heroic valor which at Gettysburg repulsed, defeated, and drove back, broken and dispirited, beyond the Rappahannock, the veteran army of the rebellion.

WILLIAM S. ROSECRANS.—Joint resolution of March 3, 1863: "That the thanks of Congress be, and they are hereby, presented to Major-General William S. Rosecrans, and, through him, to the officers and men under his command, for their distinguished gallantry and good conduct at the battle of Murfreesborough, Tennessee, where they achieved a signal victory for our arms."

PHILIP H. SHERIDAN.—Joint resolution of February 9, 1865: "That the thanks of Congress are hereby tendered to Major-General Philip H. Sheridan, and to the officers and men under his command, for the gallantry, military skill, and courage displayed in the brilliant series of victories achieved by them in the valley of the Shenandoah, and especially for their services at Cedar Run on the nineteenth day of October, eighteen hundred and sixty-four, which retrieved the fortunes of the day, and thus averted a great disaster."

WILLIAM T. SHERMAN.—Joint resolution of February 19, 1864: "That the thanks of Congress and of the people of the United States are due, and that the same are hereby tendered, to Major-General W. T. Sherman, commander of the Department of the Army of the Tennessee, and the officers and soldiers who served under him, for their gallant and arduous services in marching to the relief of the Army of the Cumberland, and for their gallantry and heroism in the battle of Chattanooga, which contributed in a great degree to the success of our arms in that glorious victory."

GEORGE H. THOMAS.—Joint resolution of March 3, 1865: "That the thanks of Congress are due, and are hereby tendered, to Major-General George H. Thomas and the officers and soldiers under his command for their skill and dauntless courage, by which the rebel army under General Hood was signally defeated and driven from the State of Tennessee."

GRADUATES OF THE MILITARY ACADEMY WHO HAVE BEEN PRESENTED BY CONGRESS WITH GOLD MEDAL AND MEDALS OF HONOR.

GOLD MEDAL.

ULYSSES S. GRANT.—Joint resolution of December 17, 1863: "* * * that the President of the United States be requested to cause a gold medal to be struck, with suitable emblems, devices, and inscriptions, to be presented to Major-General Grant.

"2. *And be it further resolved*, That when said medal shall have been struck, the President shall cause a copy of this joint resolution to be engrossed on parchment, and shall transmit the same, together with the said medal, to Major-General Grant, to be presented to him in the name of the people of the United States of America."

MEDALS OF HONOR.

Ames, Adelbert.
Arnold, Abraham K.
Baird, Absalom.
Beaumont, Eugene B.
Beebe, William S.
Bell, J. Franklin.
Benjamin, Samuel N.
Benyaurd, William H. H.
Birkhimer, William E.
Brett, Lloyd M.
Burnett, George R.
Carr, Eugene A.
Carter, Robert G.
Carter, William H.
Clarke, Powhatan H.
Cruse, Thomas.
Day, Mathias W.
Garlington, Ernest A.
Gillespie, George L.
Godfrey, Edward S.
Greene, Oliver D.
Gresham, John C.
Hall, William P.
Hatch, John P.
Heard, John W.
Henry, Guy V.
Howard, Oliver O.
Howze, Robert L.
Kerr, John B.
Lawton, Louis B.
Long, Oscar F.
McClernand, Edward J.
Maus, Marion P.
Mills, Albert L.
Morgan, George H.
Osgood, Henry B.
Parker, James.
Roberts, Charles D.
Sage, William H.
Saxton, Rufus.
Schofield, John M.
Stanley, David S.
Titus, Calvin P. (cadet).
Varnum, Charles A.
Webb, Alexander S.
Welborn, Ira C.
West, Frank.
Willcox, Orlando B.
Wilder, Wilber E.
Wilson, John M.

COMMISSIONS FOR DISTINGUISHED SERVICES.

ANDREWS, GEORGE L.—For highly meritorious service at the battles of Winchester, Cedar Mountain, and Antietam.

AUGUR, CHRISTOPHER C.—For distinguished and meritorious service in the battle of Cedar Mountain, Virginia.

AVERELL, WILLIAM W.—For distinguished service at Fair Oaks.

CARR, EUGENE A.—For distinguished services in the battle of Pea Ridge.

CARROLL, SAMUEL S.—For gallant and distinguished services in the eight days' battle in the Old Wilderness and at Spottsylvania Court House, Va.

CROOK, GEORGE.—For gallant and meritorious service in the field.

FORSYTH, JAMES W.—For gallant and meritorious services.

GILBERT, CHARLES C.—For gallant conduct at Springfield, Mo., and Pittsburg Landing, Tenn.

GILLMORE, QUINCY A.—For the distinguished skill, ability, and gallantry displayed in the operations under his charge in Charleston Harbor, the descent upon Morris Island, the reduction of Fort Sumter, and the taking of Fort Wagner and Battery Gregg.

GRANT, U. S.—Grade of lieutenant-general revived by act of February 29, 1864, and selection made under act as being "most distinguished for courage, skill, and

ability among officers not below rank of major-general." Grade of general created by act of Congress, July 25, 1866, and selection made under act as being most distinguished for courage, skill, and ability among officers in the military service of the United States.

HANCOCK, WINFIELD S.—For gallant and distinguished services in the battles of the Wilderness, Spottsylvania, and Cold Harbor, and in all the operations of the army in Virginia under Lieutenant-General Grant.

HAZEN, WILLIAM B.—For long and continued service of the highest character, and for special gallantry and service at Fort McAllister.

HUNT, HENRY J.—For meritorious services.

MACKENZIE, RANALD S.—For gallant and meritorious services in the battles of Opequan, Fishers Hill, and Middletown, Va.

MERRITT, WESLEY.—For gallant services.

REYNOLDS, JOSEPH J.—For meritorious services in West Virginia.

RICKETTS, JAMES B.—For gallant and meritorious conduct in the battle of Bull Run, Virginia.

SHERIDAN, PHILIP H.—For the personal gallantry, military skill, and just confidence in the patriotism of his troops displayed by him on the 19th day of October at Cedar Run, whereby, under the blessing of Providence, his routed army was reorganized, a great national disaster averted, and a brilliant victory achieved over the rebels for the third time, in pitched battle, within thirty days.

SHERMAN, WILLIAM T.—For gallant and distinguished services, as commander of the Mississippi Division, in the conduct of the campaign in Georgia.

UPTON, EMORY.—For gallant and distinguished service in the eight days' battles in the Old Wilderness and at Spottsylvania Court House, Va.

WARREN, GOUVERNEUR K.—For distinguished conduct in the battle of Gaines Mills.

Total number of graduates from 1802 to 1903, and table showing number of graduates each year; number entering different arms of the service each year; total number entering each arm from 1802 to 1903.

[I am indebted to Maj. Frank E. Hobbs, Ordnance Department, for the description of the service of the Ordnance Corps, and to Maj. Mason M. Patrick, Corps of Engineers, for that of the Corps of Engineers; also to Capt. Chauncey B. Humphrey, Twenty-second Infantry, for valuable assistance in the preparation and correction of tabulated data. Much of the data used is taken from Cullums and Heitman's Registers and from the records of the Adjutant's Office, U. S. M. A., subjected to careful revision and correction, and has been brought up to date as far as practicable.]

Year.	Corps of Engineers.	Topographic Engineers.	Ordnance.[a]	Light Artillery.	Artillery	Light Dragoons.	Dragoons.	Cavalry.	Infantry.	Rifles.	Mounted Rifles	Mounted Rangers.	Marines	Not commissioned.	Aggregate number of graduates each year.
1802	2														2
1803	1				2										3
1804					2										2
1805	3														3
1806	5				8				2						15
1807					4				1						7
1808	3			5	3				4						5
1809					5	1			8						15

[a] Since 1874 entrance to Ordnance Corps has been by transfer after competitive examination from *all* arms of the service.

Total number of graduates from 1802 to 1903, etc.—Continued.

Year	Corps of Engineers	Topographic Engineers	Ordnance	Light Artillery	Artillery	Light Dragoons	Dragoons.	Cavalry	Infantry	Rifles.	Mounted Rifles.	Mounted Rangers.	Marines.	Not commissioned.	Aggregate number of graduates each year.
1810															
1811	1			6	5				6					1	19
1812	2			8	3				5						18
1813	1														1
1814	1			3	18				1				1		30
1815	7		8	9	17										40
1816															
1817					17								2		19
1818	2	1	1	3	11				5						23
1819	5		2	6	12				3	1					29
1820	2		7	3	8				10						30
1821	1				12				11						24
1822	2				16				22						40
1823	1				11				23						35
1824	1				12				18						31
1825	4				15				16				2		37
1826	2				16				23						41
1827					12				26						38
1828					12				20					1	33
1829	2				15				29						46
1830	1				13				28						42
1831	1				13				19						33
1832					23				17			5			45
1833	4				16				23						43
1834	2				14		1		19						36
1835	2				16		8		30						56
1836	2				30		4		7						49
1837	1				30		5		8						50
1838					23		9		13						45
1839	5	1	1		16		4		4						31
1840	1		2		12		9		18						42
1841	3		3		15		6		25						52
1842	7	2	1		17		5		24						56
1843		2			10				23	4					39
1844		1			5		4		15						25
1845	3	2	2		9		8		17						41
1846	4	2	2		16		10		20		5				59
1847					22				16						38
1848	3	2			10		5		14		2				38
1849	1	1	1		14		3		21		2				43
1850		1	1		14		7		19		1				44
1851	2		2		11		6		19		5				42
1852	2	2	2		9		2		24		2				43
1853	2	1	2		17		5		22		3				52
1854	2	2	2		17		5		14		3			1	46
1855	2				8		4	4	14		2				34
1856	3	1	1		14		4	8	16		2				49
1857	4	3	2		8		4	4	11		2				37
1858	2	6	1		4		3	1	13		2				82

Total number of graduates from 1802 to 1903, etc.—Continued.

Year.	Corps of Engineers	Topographic Engineers	Ordnance.	Light Artillery.	Artillery.	Light Dragoons.	Dragoons.	Cavalry.	Infantry	Rifles.	Mounted Rifles	Mounted Rangers	Marines.	Not commissioned.	Aggregate number of graduates each year.
1859	3	3	1		4		2	1	8						22
1860	2	2	2		7		3	4	20		1				41
1861, May	3		3		10		5	4	19		1				45
1861, June	4	1	4		8		5	3	7		2				34
1862	7		4		15			2							28
1863	8		7		6			2	2						25
1864	15		2						10						27
1865	9				6			10	43						68
1866	9		3		10			6	7						41
1867	11		2		43			6	1						63
1868	8		1		15			18	12						54
1869					12			26						1	39
1870					18			40							58
1871								20	21						41
1872								23	34						57
1873	4				12			11	14						41
1874	1				13			5	22						41
1875	4				15			10	14						43
1876					14			13	21						48
1877	3				12			33	28						76
1878	2				1			10	30						43
1879	5							24	38						67
1880	2				9			17	20					4	52
1881	5				9			15	23					1	53
1882	3				12			7	15						37
1883	3				9			16	24						52
1884	7				7			13	10						37
1885	2				7			11	13						39
1886	4				9			23	41						77
1887	2				14			16	32						64
1888	3				7			13	21						44
1889	6				10			7	14					1	49
1890	4				10			12	22						54
1891	5							18	12						75
1892	2				11			14	33						62
1893	5				9			15	21					1	71
1894	2				7			11	34						84
1895	2				7			13	32						82
1896	2				13			30	28						73
1897	7				7			18	35						67
1898	7				12				40						59
1899, February	1				10			12	28						72
1900	5				17			22	10						54
1901, February	10				28			34						2	74
1902, June	7				14			31	1						54
1903, June	11				18			21	43						93
Total	318	32	72	49	1,187	1	136	668	1,488	5	35	5	5	13	4,214

THE UNIFORM OF CADETS, 1794–1902.

By Captain FRED. W. SLADEN,
Fourteenth U. S. Infantry, United States Military Academy, 1890.

CADET, 1836

AN act of Congress, May 9, 1794, provided for the organization of a Corps of Artillerists and Engineers, each company to have two *Cadets* with the pay, clothing, and rations of a sergeant. Only 9 were appointed before March 16, 1802. The law of April 12, 1808, authorized 156 additional Cadets, and that of January 11, 1812, provided 64 more, making a total of 310, which was reduced to 260 by the law of April 29, 1812. (Laws of Congress relative to West Point and the United States Military Academy, Library U. S. Military Academy.)

The first record of the uniform and equipment of Cadets is found in the clothing book of the First Regiment of Artillerists and Engineers, dating back to 1795, and in the "West Point Ordnance Waste Book" of the same date (these books are in the Library U. S. Military Academy). Three Cadets (James Tryplett, Philip Roderigue, and Philip Landais) are charged at various times during 1795 and 1796 with swords, sword belts, sergeant's helmets, plumes, cockades, sergeant's coats, and sergeant's shirts, drawn for their "personal use." They turned in, while commanding companies of the First Regiment of Artillerists and Engineers, "damaged stands of arms," "old cartouche boxes," etc., showing that, while commanding companies and performing the duties of officers, they were wearing the uniform and equipment of sergeants.

In 1795 the enlisted men of Artillery wore round hats with a brim 3 inches wide, and with a strip of bearskin 7 inches

Q. Military Academy West Point N.Y.

SHOWING THE NORTH AND SOUTH BARRACKS, THE 'SECOND' ACADEMY AND THE MESS HALL, WITH WOOD'S MONUMENT IN THE CENTER OF THE PLAIN.

wide and 7 inches high across the crown, with a black cockade, eagle, and red plume. (General Orders, Headquarters, Greenville, 26 June, 1795, Magazine American History.) The coat was of blue, revolutionary cut, faced and lined with scarlet, and having yellow buttons. White cross belts were worn. The pantaloons were of dark blue in winter and white in the summer, and they wore black half-gaiters 7 inches high.

1799.

On January 9, by a President's order, the uniform of a Cadet of Artillery was prescribed as follows:

The uniform of the Artillery to be a blue coat with white buttons and red facings, white underclothes,[a] and cocked hats—the officers' coats to reach to the knees—the coats of the Artillery to be lined with red, the Cadet to be distinguished by a silver strap on the right shoulder. Commissioned officers and Cadets to wear swords. The hat to be ornamented with a black cockade with small white eagle in center (changed in 1800). Cadets to wear red plume and gold strap, with fringe, on left shoulder.

1805.

Speaking of Colonel Williams's reappointment and assumption of duties as Superintendent U. S. Military Academy in April, General Cullum says (Register, p. 505, Vol. III) "he requested that Cadets' uniform be defined and made all alike, they having previously worn the respective dress of the Corps (Engineers or Artillery) to which they belonged, and having clothed themselves pretty much as they liked. Colonel Williams, in submitting a plan for messing Cadets, stated that in taking their rations in money (27 cents per day) and buying provisions their pay and rations both were "swallowed up in food and they have nothing left for clothing." After trial, the cost of messing was found to be 30 cents per day, etc., the consequence of which was that before the end of the year they were "literally in rags," and the Superintendent made "a forceful but fruitless appeal" to the Secretary of War for "an allowance of clothing to Cadets as noncommissioned officers." (Page 518.)

[a] Waistcoats, breeches, stockings.

1808.

"The wearing of the new Cadet uniform was made imperative." (Cullum's Register, Vol. III, p. 518.) No record can be found of change in Cadet uniform between 1800 and 1814, and it can not be found to what uniform Cullum here refers.

1810.

Colonel Williams, the Superintendent, "succeeded after persistent effort" in extorting Secretary Eustis's approval, April 30, of the following regulations relative to the Military Academy at West Point: "A uniform shall be established by the Superintendent, with the approbation of the Secretary of War, for all Cadets attached to the Academy, without regard to their respective corps." Cullum Register, Vol. III, p. 534.)

1813.

Under date of December 8, the Secretary of War wrote directing the superintendent of the public armory at Springfield to ship to West Point "three hundred stands of short musquets" for the use of Cadets of the Military Academy.

1814.

By regulations issued by the Adjutant and Inspector-General, dated May 2, it was prescribed that the Cadet uniform be as follows: Coat, blue cloth, single breasted, standing collar, eight buttons in front, six in rear, one on each side of the collar, with one blind buttonhole, and one on each cuff; underclothes, nankeen in summer, gray cloth in winter; black stock, round hat, cockade with gilt eagle and loop; cut and thrust sword in a frog belt worn under the coat; buttons, eagle impression, yellow gilt; Jefferson shoes. "Little attention, however, was paid to the prescribed dress, everything being worn according to fancy, up to a major-general's uniform. The belts were black and the musket the same as that used by the soldiers, except a lighter one." (Cullum Register, Vol. III, p. 596.) Gen. D. G. Ramsey (Cullum Register, Vol. III) speaks of being supplied before leaving home in May, 1814, with "two uniform coats of blue cloth, one short, intended for daily wear, the other long tailed for

full dress; a round black hat,[a] ornamented with silk cockade and yellow eagle, etc.," and of being recognized (in New York) as a Cadet from the uniform he wore. He states further that "during the winters of 1814 and 1815 Cadets were greatly exposed to the cold; greatcoats had not become the fashion for boys and such a comfort was a specialty. My wardrobe had been carefully prepared, but the inventory did did not include the greatcoat." (This is the first mention of the overcoat.)

1816.

By an order from the office of the Adjutant and Inspector-General the uniform of 1814 was changed to the following:

A *coatee* of gray satinette, single-breasted, three rows of eight yellow gilt bullet buttons in front, and button holes of black silk cord in the herringbone form, with a festoon turned at the back end, a standing collar to rise as high as the tip of the ear; the cuffs 4 inches wide, the bottom of the breast and the hip buttons to range. On the collar one blind hole of cord, formed like that of the breast, 4 inches long, with a button on each side. Cord holes in the like form to proceed from three buttons placed lengthwise on the skirts, with three buttons down the pleats. The cuffs to be indented, with three buttons and cord holes lengthwise, on each sleeve, corresponding with the indentation of the cuff, in the center of which is inserted the lower button.

Vest.—Gray cloth for winter, single breasted, yellow gilt bullet buttons, and trimmed with black silk lace. For summer, white vest, single breasted, with buttons but without trimmings.

Pantaloons.—Gray cloth for winter, trimmed down the side with black silk lace, and the Austrian knot in front; no buttons on the side or at the bottom, but made with under-straps. Russia sheeting or white jean for summer, without trimmings, the form the same as for winter.

The Jefferson shoe, rising above the ankle joint under the pantaloons.

Black silk stock. Common round hat. Cockade, black silk, with yellow eagle, to be worn at all times.

Sword—cut and thrust, yellow mounted, with a black gripe, in a frog belt of black morocco, and worn over the coat.

No dress resembling the military, without conforming to the regulation, will be worn on any occasion, excepting that when attached to corps Cadets will wear the uniform of the company officers, without epaulets. (Uniform of the Army of the United States, 1774–1899, Quartermaster-General, p. 6.)

[a] Similar to the cylindric silk hat of the present day.

This is the uniform which, with modifications made from time to time, is worn to-day. This color is said (Memoirs of Lieut. J. T. Greble) to have been adopted out of compliment to General Scott and his troops who, clothed in uniforms of gray (due to the inability of Government to furnish them with blue), had on July 4, 1814, won a victory over the British at Chippewa.

1817.

Under Major Thayer, September 23, the chevron was first adopted pursuant to the following order:

For the designation of rank, chevrons will be worn on the arms of the battalion officers and noncommissioned officers. The colonel shall wear three on each arm; the captain shall wear two on each arm; the adjutant one on each arm; the lieutenants one on the left arm; the sergeant-major two on each arm; the sergeants one on each arm; and the corporals one on the left arm; those worn by the officers to be of gold lace and those by the noncommissioned officers yellow ribbon.

1818.

On the 4th of November the following order was issued:

The lineal rank of company officers will for the future be designated by chevrons of gold lace, edged with black cloth, borne upon the right arm, those of commissioned officers will subtend downward, and those of the noncommissioned officers upward. Captains will wear three, lieutenants and sergeants two, and corporals one. The first or orderly sergeant will add the interior bend or bar of a third chevron. The battalion staff will, in addition to the badges of their lineal rank, wear bars upon the left arm. The adjutant and sergeant-major will add the interior, and the quartermaster and quartermaster-sergeant the exterior bars of two chevrons corresponding to those of the right arm.

This is the description of chevron worn by Cadet officers and noncommissioned officers until the 29th of June, 1830.

Between 1817 and 1820 the round hat with cockade gave place to a leather cap 7 inches high with full crown and drooping visor and plume, of the same general pattern as that now worn as a "dress hat" by the Corps of Cadets, with a gilt diamond-shaped ornament bearing the letters "U. S." and a chin strap of gilt scales. An engraving of the date of 1820 shows the hat topped with a plume some 14 inches high of a single feather curled to the rear at the top.

1820.

The trousers at this period were very full and reached only to the ankle joint. Of the uniform at this period the report of the Board of Visitors, 1820, speaks as follows:

The clothing for the Cadets is for the most part uniform, and with conformity with regulation. The different articles are furnished by a storekeeper whose stock and the mode of manufacture are under the inspection of the officers of the Academy. The material is chosen and purchased by the quartermaster, and the profit allowed to the storekeeper is very reasonable. The coat, which is of gray cloth with black trimmings, is handsome and convenient. The present price is $16. It lasts on the average of eight months. The vest is of kerseymere of the same color. It costs $3.50, but it does not appear a favorite article of clothing, as not more than 100 are sold annually. Vests of white kerseymere are worn in common, and as they are much more becoming no good reason exists why they should not become the uniform. The pantaloons are also of gray kerseymere, and cost the Cadet $9.50. They are serviceable and becoming. These articles were formerly made of a very inferior material and cost much more than they do at present; besides a further reduction in the price may be fairly anticipated when a new contract for cloth is made.

For summer clothing they wear with the coat, vests of white Marseilles, which cost $2.50, and linen pantaloons, which cost $2.75. It may here be remarked that the pantaloons, both for summer and winter wear, have, in compliance with the present fashion, been shortened so as to leave an unsightly gap between them and the regulation shoe. For the encampment which has just commenced the corps have been directed to furnish themselves with a fatigue dress of low cost and excellent quality, which for the purpose will save much for the Cadets in the wear of their uniforms and in bills for washing. The uniform cap is showy and elegant, but heavy, and affords no shelter either from the sun or rain; with its trimmings it costs no less than $8, and is perhaps the most expensive part of their equipment. There is no half-dress cap, and the Cadets in consequence wear, except when on duty, common hats, which are very expensive to them. There are two sorts of shoes permitted by regulation and furnished them, one at the price of $3; the other of $4. They appear to be of good quality and very serviceable, but much too dear. There is no regulation for uniformity in any other species of clothing, nor any tariff of prices. These are, however, kept down in some measure by competition. The supply of all articles, except those of prime necessity, is under the immediate direction of the Superintendent. No Cadet can contract debts even for these, beyond the arrears of his pay, nor purchase anything else on a credit

without the permission of the Superintendent. On this point the wishes of the Cadet combine with the cupidity of the traders in a continual struggle against their true interest. In such a strife the art of man will not insure entire success, and it is probable that credit for forbidden articles has sometimes been obtained on pledge of honor. The extent of this evil, however, can not be great, and is most probably limited to those persons who on a late occasion refused to sign the pay rolls because their acknowledged debts were first deducted. (Report of Board of Visitors U. S. Military Academy, 1820, in Swift MSS., 1804–1860.)

1828.

Engravings in the Library of the U. S. Military Academy, made from drawings of George Catlin, dated this year, show the Cadet in his tall leather hat with plume, ornament, and cord, as described above, with his high-necked coat and baggy pantaloons held down by straps of the same color under his instep.

By "Military Academy Order No. 41" of this year, from the office of the Inspector of the Military Academy, the overcoat was ordered adopted. (See copy of a letter from Colonel Gratiot to Colonel Thayer, Cullum MSS., Nov. 6, 1828.)

1830

On the diploma of A. J. Swift (1830) the dress hat is shown with a short brush pompon instead of the tall single feather plume shown in Catlin's plate of 1828, and with a full crown similar to the present style. It has a diamond-shaped ornament with the letters "U. S." on it, and a cord looped up at the side near the top and hanging just over the visor.

By an order dated June 29 the present style of chevron was adopted.

1836.

Under War Department orders of this date prescribing a uniform for the Army, a change is to be seen in the material of the coatee from gray satinette to gray cloth, and in the collar, which is trimmed with black silk lace, "*to fit the neck* and hook in front."

The overcoat is also described and was similar to that used at present except that it was single breasted.

INSPECTION. HEAVY MARCHING ORDER, 1902.

In the description of the trousers the black stripe is of "velvet" instead of black silk lace and no Austrian knot is mentioned. A fatigue dress of unbleached Russia drilling is prescribed.

A forage cap, made according to pattern deposited with the storekeeper, is first mentioned. In all probability it was similar to that of the campaign uniform of the enlisted man of that day, with a drooping visor and a high crown stiffened with whalebone.

1838.

The first volume of "Post Orders" in the adjutant's office dating back to 1838 contains the following relative to Cadet uniforms:

Summer pantaloons to be made in future of same pattern as winter ones, at request of the Corps of Cadets. (Post Orders No. 34, March 15.)

After the 10th of next June the uniform stock of the Corps of Cadets will be of black bombasine. (Post Orders No. 65, May 30.)

Pantaloons to be made loose with wide fall in front, made to be worn with leather straps when so ordered; when the supply of velvet is used up black cassimere to be substituted in stripes. (Post Orders No. 185, December 17.)

Wearing of vests optional, etc.; when worn they must be uniform, and when not worn the coat must be buttoned up when out of quarters or tent. (Post Orders No. 172, November 24.)

1839.

Under date of May 18, straps are required to be worn on the summer uniform, leather ones to be used when those now on pantaloons need renewing. (Post Orders No. 38.)

1840.

General Orders No. 7, Adjutant-General's Office, prescribes the uniform of Cadets the same as given in 1836, except that the "dress hat" is described as "one black cap, round crown, 7 inches high, etc.; black worsted pompon 8 inches long, set in a yellow metal socket; cap plate worn in front of cap." This is the first mention of the black worsted pompon, though it is possible that it was worn as early as 1836. The War Department order of that year prescribing the uniform does not describe the hat.

1841.

By Post Orders No. 10, March 29, Cadets were required to wear either "their own full dress or a citizen's dress, undistinguished by any military badge or mark whatever."

A commandant's order under date of June 30, reads as follows:

I. The battalion officers and noncommissioned staff will supply themselves at the store each with two shoulder belts for the sword, which belts will be worn in lieu of the waist belts now in use, commencing with the next Sunday inspection. The plate for the shoulder belts will be the same now used by the Corps for the waist belts.

II. In conformity with Army Regulations, the Cadet officers will hereafter wear their sashes whenever the sword is worn.

III. The sword belts now in use by the officers and noncommissioned staff will be turned in to the battalion quartermaster on Monday next between reveille and retreat.

IV. Agreeing to the Army Regulations, the sergeant-major, quartermaster-sergeant, and first sergeants of companies will alone wear sashes.

1842.

Under date of May 11 the black plume of drooping feathers and a brass castle in lieu of the pompon and cross cannon were ordered to be worn by Cadet officers. (Orders U. S. Corps Cadets, 1839–42.)

On July 7 the commandant forbids the wearing of ununiform vests, cravats, stocks, and pantaloons, and the removal of the whalebone from the caps.

1843.

Under date of April 27 the wearing of an approved pattern of shirt collar was ordered, to be turned 1 inch over the stock, the latter one-fourth inch above coat collar. (Orders U. S. Corps Cadets, 1842–48.)

By Special Orders No. 21, Adjutant-General's Office, the ornament on the hat was changed to a castle surmounted by an eagle. A lithographed certificate of resignation (now in the adjutant's office, West Point), given to Cadets from 1840 to about 1860, shows a cylindrical black hat with plume, and the castle surmounted by an eagle on the front.

1845.

Orders U. S. Corps Cadets, April 30, directed that the cap pouch be worn on the right side in prolongation of the trousers' stripe.

Special Orders No. 129, U. S. Military Academy, changed the cut of the trousers from the "wide fall in front" to "open in front."

1847.

Special Orders No. 140, U. S. Military Academy, announced that Cadets acting as assistant professors would wear "captain's chevrons and a star."

1850.

In the Journal of Rev. Silas Constant, by Roebling, p. 450, is a photograph of Gen. G. K. Warren, class of 1850, taken while a first classman, which shows his "dress hat" almost cylindrical in shape, with a drooping visor, ornamented by the castle with an eagle over it and surmounted by a plume of the present style. He wore a narrow white collar rolling over the collar of his dress coat, and it did not meet by 4 inches in front. The sash and sword belt were like those now used. The sword scabbard was leather covered.

1851.

In the uniform order No. 31, Adjutant-General's Office, of this year, several changes were made. The overcoat prescribed was double instead of single breasted, and of grey kersey. The button of 1836 ("gilt, cupped, three-fourths of an inch in diameter, and stamped across the front with the word 'Cadet'") was changed to "gilt, seven-eighths of an inch in diameter; device a spread eagle with shield, and having the word 'Cadet' next the margin at top, and letters 'U. S. M. A.' at bottom." The overcoat is that used at the present time.

There was also prescribed a riding jacket, and riding trousers of "grey kersey reenforced on the inside; black stripe 1 inch wide down the outer seam; faced at the bottom with black leather for the space of 8 inches; outer seam slashed at bottom same length."

It is believed that the "dress hat" was soon after this period changed to that worn up to 1899, similar in shape to that prescribed for the Army, *i. e.*, crown of four upright pieces, height in front from $5\frac{3}{4}$ to $6\frac{1}{4}$ inches along the front seam; length behind from $7\frac{1}{4}$ to $7\frac{3}{4}$ inches along the back

seam; tip from $5\frac{1}{2}$ to 6 inches in diameter, and inclining downward slightly from rear to front when the cap is worn (the dimensions given to vary with the circumference of the head); visor of strong neat's leather, $2\frac{1}{4}$ inches wide at the middle, black on the upper and green on the under side, to be put on at right angles to the front of the cap, or, in other words, to be horizontal when the cap is worn; strap of strong black leather fastening under the chin by a yellow metal buckle and leather slide. (Extract, General Orders, No. 31, Adjutant-General's Office. "Uniform of the Army of the U. S.," p. 36, Art. 39.)

1853.

A wood cut of this date in U. S. Military Academy scrap book No. 1, Library U. S. Military Academy, shows the Cadet wearing this dress hat ornamented with the eagle and castle, having a pompon on both the privates' and officers' hats and with a visor drooping but slightly. A white shoulder cartridge box belt over the left shoulder and a black leather waist belt with a plate bearing the letters "U. S." are shown in this cut. The officer wears a white sword belt (without breast plate), sword, and sash.

1857.

In the class album of this year, the earliest on file in the library, U. S. Military Academy, the dress hat worn by the Corps up to 1899 is shown. The visor was horizontal, the ornaments were the castle surmounted by the eagle and the plume of black feathers. The dress coat was like that of to-day, with the exception of the collar, which is hooked with one hook at the bottom and cut away showing a black stock. A narrow white rolling collar was worn on the coat. Cuffs were not generally worn and the coat cuff was slashed 3 inches and hooked together. There was a flat breastplate on the sword belt. The sword had a broader blade and scabbard, but was of design similar to those used at present. The forage cap was 4 or 5 inches high, with a flaring crown, drooping visor, leather strap, and no ornament. It had a rain cover. It is believed that this is the cap ordered issued in 1846 (see Orders U. S. Corps Cadets, 1846). The riding

jacket was the same as that worn up to 1891, except for the collar, which was cut away like the dress coat and had three strips of black braid put on horizontally and equidistant. It had also a small flap-covered pocket on the right side just over the belt. Gauntlets, a heavy cavalry saber, and black leather belt made up the riding equipment.

1861.

Photographs of this date show a forage cap like that worn by the Army during the civil war, but with a smaller crown. This same cap with minor alterations was used until June 12, 1903. An ornament was worn attached over the visor, consisting of a wreath encircling the letters "U. S. M. A." Cadet privates wore, when under arms, white waist and shoulder belts, the latter over the left shoulder. To the shoulder belt was attached a leather box for ammunition, to the waist belt a bayonet scabbard on the left side, and on the right a small leather box for caps.

1863.

In this year the dress coat collar was worn hooked with two hooks, and the white collar, a plain flat piece of linen, was folded and crimped by the wearer, and pinned on over the coat collar so as to meet in front. This same collar was worn until 1885, when the made-up turn-down collar was issued.

Acting assistant instructors (Cadets) wore rows of buttons containing double the regulation number of bell buttons on their dress coats.

1864.

By a Post Order of December 5, chevrons (similar to service stripes such as Washington adopted for the Army on June 17, 1782) were prescribed for military merit.

1866.

By a Post Order of August 11, the preceding order was revoked. In a group of photographs of the class of 1867 shown in the 1866 album, the pompon on the dress hat is to be seen to a short brush affair, which was worn until 1869, when a change was made to a worsted pompon, smaller at top than at the base, and 3 inches long.

1867.

Muskets of the old pattern were turned in and rifles issued to the Corps. (Post Orders, vol. 7, page 92.)

1869.

The castle and eagle ornament on the dress hat was changed to one of light metal, representing a sunburst with a shield of darker metal in the center divided into four compartments, each containing the insignia of one of the four arms: Engineers, Artillery, Cavalry, and Infantry.

1870.

The forage cap ornament, a small eagle surmounted by the letters "U. S. M. A.," was adopted. It was embroidered in gold and silver upon the cap. This cap and ornament was worn until June 12, 1903.

1878.

The dress hat ornament was changed to one representing a spread eagle, the wings of which were joined by a band bearing the letters "U. S. M. A." This was of metal and continued in use until 1899, when the arms of the Academy was adopted for an ornament on the dress hat.

1889.

On June 15 the blouse was introduced. This was of the same style as that worn by officers, being of gray cloth, and bound around the edges, the cuffs, and up the seams in the back with black mohair braid, having a collar of the same material, of height suited to wearer. To new Cadets was issued one of gray flannel, ready-made. The "shell" and riding jackets were not again issued. The turn down was replaced by a standing collar fastened inside the collar of the dress coat and blouse.

1893.

Riding breeches fastening at the ankle and worn with the service-brown canvas legging were issued. The legging later was issued in a Cadet gray.

1894.

The gray mackintosh (rain coat) was first issued.

1896.

During 1895 and 1896 the Springfield Cadet rifle was replaced by the United States magazine rifle, caliber .30.

1899.

The service shelter half, haversack, canteen, meat can, knife, fork, and spoon were issued to the Corps, as well as a light intrenching pick and spade. The blanket roll was used instead of the blanket bag, and the intrenching tool was carried attached to the field belt on the right side. The "campaign hat," leggings, and in warm weather, a gray woolen shirt, were worn when the field outfit was carried.

The present dress hat, in general shape similar to that adopted between 1816 and 1820, ornamented with the arms of the Academy, was adopted. (Post Orders, vol. 14, page 468.)

Service stripes, one for each year of the class at the Academy, were adopted. (Post Orders, vol. 15, page 34.)

I beg to express my acknowledgements to Dr. Edward S. Holden, whose bibliography of the U. S. M. A. directed me to a great number of the foregoing references to sources of information with respect to the uniform of Cadets.

Cadets riding: drawn by Brig. Gen. J. P. Farley, U. S. A., U. S. M. A., 1861.

THE BATTALION COLORS OF THE U. S. CORPS OF CADETS.

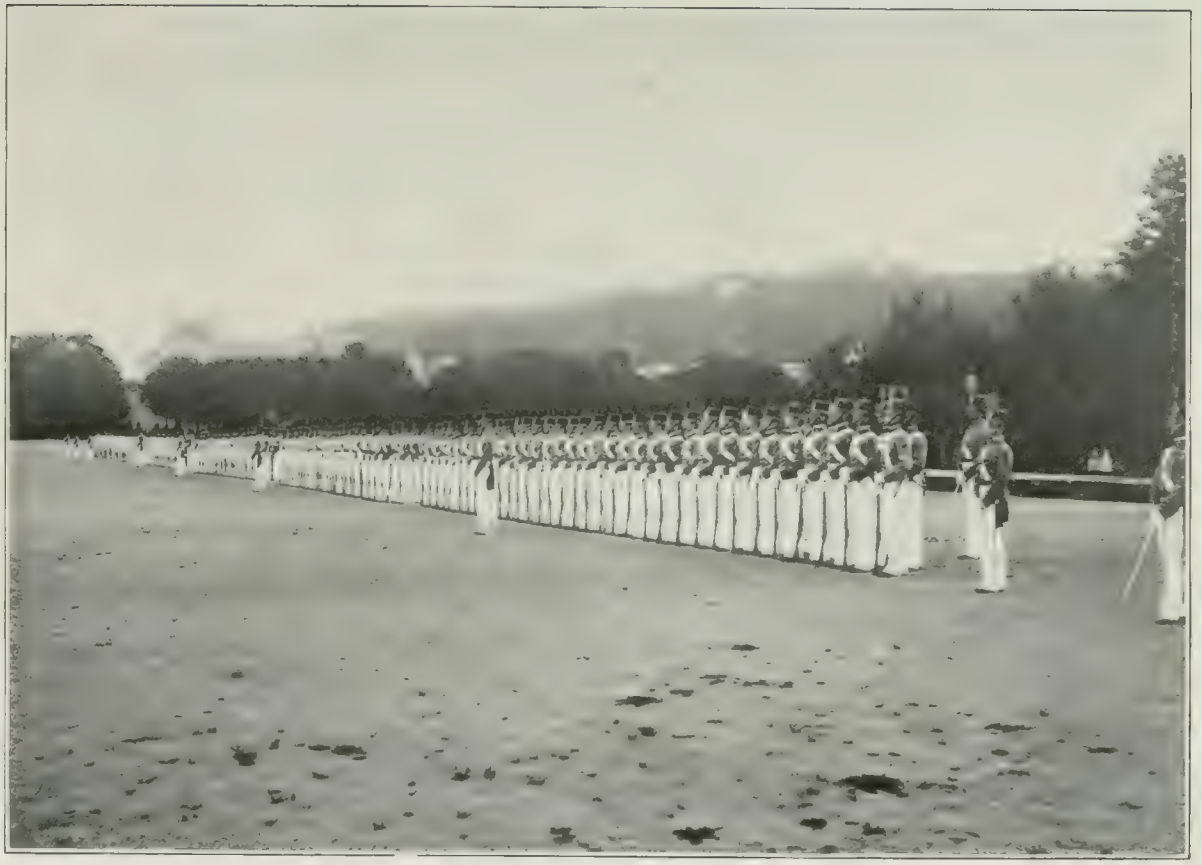
1821 to 1902.

CADET, 1901

ON the 19th of April, 1821, the Secretary of War directed that the Corps of Cadets should be marched to Boston during the summer. They were so marched during August, carrying with them the battalion colors. They encamped on Boston Common, and on the 14th of August they visited President John Adams at Quincy. In his Life and Works, page 10, Appendix A, Adams's speech to the Corps is given. On pages 400 and 401 of the same volume there are references to this visit in letters of Adams. It is said that "the Corps had two mottoes—*Scientia ad gloriam*, and *Paremus*"—the translation of the latter being *Essayons*, which was and still is the motto of the Corps of Engineers.

In Josiah Quincy's Figures of the Past, pages 88 to 93, there are references to this visit. It is said that "a stand of colors bearing the motto *A scientia ad gloriam* was voted to them in town meeting and was presented by the selectmen;" that "as they marched to President Adams's house on August 14 their colors were flying and the band was playing;" and that "the new standards presented by the authorities of the town of Boston were displayed before us." The national flag is mentioned * * * "the national flag is painted on a dark ground," and it is said that "the regimental standard is painted on a white ground, with a figure of Minerva and various appropriate devices."

In the Ordnance Museum of the U. S. M. A. there are various battalion colors:



DRESS PARADE, 1902.

No. 915 is called "Cadet colors presented to the United States Corps of Cadets by the ladies of Boston." This is evidently the regimental standard spoken of by Mr. Quincy. It is very much torn and soiled, but it is obvious that the original color of the silk was white. At the top of the standard are the rays of the sun; at the bottom, a wreath; in the middle of this wreath is the word *Essayons;* in the middle of the flag is a silk embroidery with three figures upon it—Minerva to one side, with her owl at the foot, gives a wreath to Mars, who is upon the other side of the group, in the center of which is the Goddess of Liberty; both sides of the flag are alike. It is now impossible to find upon the flag the words *A scientia ad gloriam*, if indeed they ever were there. The design for the title-page of the Regulations of the Academy is evidently inspired by the device just described."

The flag which Mr. Quincy calls the "National flag" is No. 924 in the catalogue of the Ordnance Museum. It is, in fact, a flag with a blue ground, in the middle of which is an eagle; below the eagle is a shield of the United States with stars painted on the chief of the shield; at the bottom of the flag are the words *Presented by the inhabitants of Boston.* I have been unable to find any other inscription.

No. 918 of the Ordnance Museum catalogue is called "Battalion colors, United States Corps of Cadets." It is a blue flag with the eagle in the center and the coat of arms of the United States with the motto *E pluribus unum;* above the eagle are the rays of the sun, and above these, stars. The date at which this flag was borne is unknown at present.

No. 926 is called "Battalion colors, United States Corps of Cadets." It is very much like No. 918. At the bottom of the flag is a wreath of oak leaves.

No. 928 is called "Battalion colors of the United States Corps of Cadets," and is the blue color of a battalion of infantry. The words *United States Corps Cadets* are at the bottom.

A flag without any number is also in the collection. It is the ordinary blue color of a battalion of infantry, and it is marked *United States Corps of Cadets.*

[a] *See* page 574 of this volume.

In the War Department records of the Military Academy, under the date 1823, it is said that Miss Leslie was commissioned to paint a standard for the Corps of Cadets. The device is not there mentioned.

On March 24, 1899, post orders designated black, gray, and gold as the colors of the United States Military Academy for use in all athletic games.

In July, 1902, a gray flag with a fringe of black and gold, the gray ground charged with the arms of the United States Military Academy, was adopted for the battalion colors.

E. S. H.

GEORGE A. CUSTER

GEORGE CROOK.

E. R. S. CANBY.

GEORGE WRIGHT

PHILIP ST. GEORGE COOKE.

RANALD MACKENZIE.

GENERAL OFFICERS, INDIAN WARS.

SERVICES OF GRADUATES OF WEST POINT IN INDIAN WARS.

By Major EBEN SWIFT, Twelfth U. S. Cavalry, U. S. M. A., 1876.

The savage wars of peace.—Kipling.

INFANTRY (UNDRESS), 1846.

THE ADVANCES and delays of civilization have been in direct proportion to the efficiency of armies and the perfection of the weapons of war. The Indians who first came in contact with the whites were not a warlike race; their weapons had not been improved since the days of primeval man; notwithstanding their boasting and pride in warlike deeds, their performances were spectacular and childish. On the other hand, the Anglo-Saxons had written their name in history with the bow and arrow. They came to America armed with a few smooth-bore, flint-lock muskets, and took whatever they wanted. Their armies, under Myles Standish, John Smith, Captain Church, and others, were insignificant in size, but they marched where they wished and they met few disasters. In the conduct of the early wars, so far as cruelty and ferocity are concerned, no great difference will be found between the savages and the people who have furnished our best models of piety and who have suffered most for conscience. Human nature in the presence of events which excite revenge and passion has been about the same in all ages.

In the struggles of the white people for control, the Indians had many opportunities to learn their methods of warfare. They gradually became more dangerous in ambush and more expert in stratagem, as was seen in the defeats of Braddock, St. Clair, and Harmar, after about a century and a half. Later, at Tippecanoe, 1811, and at Emucfau, 1814, the Indians fought aggressively and partly in the open. But they never were a steadfast foe; their villages could be located; their breastworks could be stormed; their homes and stores of food could be destroyed.

When we carried the war among the nomads of the plains, the swamp dwellers of Florida, and some of the mountain tribes, it was not so easy to force a fight to a finish, because the Indian was able to hide his home. It was on the plains of the great West where the Indian existed in his glory. Immense herds of buffalo, deer, and elk afforded him food and the necessities of the chase required a nomadic life. These Indians were clean, virtuous, and honest in a certain way, but without fear and without pity. They were few in numbers, but received great accessions from the tribes which were driven westward, who showed a like aptitude. The struggle for existence must have been an exceedingly hard one before they got horses. They despised agriculture. Like the tiger, they were content to eat raw meat and to quench their thirst at the throat of their prey. They would chop open the head of a dying animal and eat out the warm brain with their fingers. The sight of a hungry babe eating a bit of quivering raw liver is enough to dispel many illusions. When the wild get of Coronado's war horses had been caught and when the breech-loader was brought to him in exchange for buffalo robes, a wonderful development took place in the Indian as a warrior. He quickly became the finest light horseman that the world has ever seen, with tactics that have never been equaled by Bedouin, Cossack, Numidian, or Tartar at his best. And he kept on learning, too, as was seen at Ash Hollow and the Little Big Horn, separated by twenty years.

Said old Sergeant Hickeye, of the cavalry, as he stood on the guardhouse porch and eased his belt and shifted his quid

and watched an Indian commission drive into the post: "An' here comes anodder o' thim bald headed ould divils wid a box o' matches to make a traytee wid de Shy Annies." Said Spotted Tail, the Sioux, shaking a paper containing unfulfilled promises of the Government in the face of a Commissioner of Indian affairs: "All men from Washington are liars." Said Joseph, the chief of the Nez Percés, as he recalled nearly seventy-five years of experiment with the white man's friendship, a battle saved for them, their sick succored, their hungry fed: "We do not want your schools, because they teach us to have churches; and we do not want your churches, because they teach us to quarrel about God." Between the lines of these brief bits of history can be read some of the reasons why it is not a pleasant task to tell the history of our Indian wars. To record the story of a race put to the sword would be bad enough, but the paper-treaty method of extermination is worse. Civilization approached the Indian with a Bible in one hand and a paper treaty in the other, a bludgeon in her sleeve, and a barrel of whisky in her wagon, not to mention the blight that goeth unto the third and fourth generation. So in what is here to be said about Indian wars the right and the wrong will be lightly touched upon. The task of the soldier was to punish the Indian when he applied his crude ideas of justice or revenge, and to force him to obey when he could not be cajoled or scared.

The idea of a great military academy was beyond the early efforts of West Point. It was the plan to make a school for "Artillerists and Engineers," whatever that may have meant at that day. How great its success was, as far as the artillery was concerned, may be judged by the fact that up to the beginning of the war of 1812 no authorized manual for the arm had been adopted, and officers who wished to know something of that branch were obliged to avail themselves of anything that came in their way. A department of tactics, probably for the infantry, was established in 1817.

In the reaction following the Revolutionary War the cavalry lessons of Henry Lee and William Washington, not to speak of Tarleton, were forgotten for over half a century. Notwithstanding the fact that the country passed through a great war

in that period cavalry tactics were unknown in the Army, so that each officer had to invent his own theory and his practice as well. At West Point the first cavalry instruction was not given until 1839, when a sergeant and 12 horses were provided, the sergeant being appointed "riding master." Four or five years before this two regiments of cavalry had been added to the Army, but only two officers above the rank of lieutenant were graduates of the Academy. Not until 1841 was a cavalry drill book adopted.

The infantry, although comprising the bulk of the Army, as it always does, seldom received a graduate on its roll. A study of the assignments at that time might lead us to suspect that service in the infantry regiments in the wilderness between Detroit and New Orleans was regarded as a punishment for lessons left unlearned, and midnight scouts and cup and can at "Benny Havens, Oh!" Whisky cost 33 cents a gallon, and the Army, notwithstanding its small size, drank 72,537 gallons merely as rations in a single year. Soap cost 10 cents per pound, and brown sugar 50 cents, and the pay, rations, and forage of a full colonel amounted to about what a second lieutenant gets now. Desertions went as high as 20 per cent. One-fifth of the line officers resigned in one year.

In the second war with Great Britain, out of 55 regiments of infantry, rifles, rangers, sea fencibles, and dragoons, which bore the brunt of that conflict, there were 16 graduates of West Point—one of whom served in the ranks because he was in civil life when the war began and could not get a commission. At the same time about 90 of the alumni of the Academy were serving in other branches of the Service.

Whatever Indian service there happened to be was performed by the infantry, which also planted corn, built roads, and constructed military posts. So one-third of the history of the Military Academy was made without its influence being felt in the Indian wars of the nation.

At the end of forty years there were but five graduates above the rank of captain in the line. After the close of the civil war there was not more than one graduate to ten officers in the infantry and cavalry, which did about all the Indian

campaigning. These matters must be considered in giving the story of Indian wars where West Point men have borne a hand. What share her sons have taken in other fields of action is another story.

It was nearly sixty years before a graduate of the Academy reached the full grade of a general of the line. When McClellan was made a general the Military Academy had graduated nearly 2,000 men, and McClellan, by the way, was appointed from civil life. The question, therefore, may well be asked, "Upon what food did these Jacksons, Taylors, Harrisons, Pierces, Scotts, and others feed that they should grow so great, while the Military Academy was grinding out artillerists and engineers and subalterns of the line?" In that period of sixty years 37 men who began their military careers after the installation of the Military Academy reached the full grade of general of the line, and three of them were elected Presidents of the United States.

Why did this institution fail to breed a single general in all those years filled with warfare? The reason is that military experience and knowledge were not usually essential qualities for that position. Let us look at the list. Twenty-three out of the 37 generals were practically without military experience; of the 14 remaining all but 3 entered the service at the grade of captain or higher. Some of them were undoubtedly fine soldiers, but so were hundreds of others who did not get so fair a start. It is not so hard to reach high rank when you begin at a point which other men take many years to reach. The graduates of West Point entered as second lieutenants and brevet second lieutenants, and by the time they attained the rank from which selections are made they were old and worn out. The record of Indian wars is a history of the deeds of captains and lieutenants, for the most part, many of whom were killed and disabled, after showing the highest military qualities. So that West Pointers in Indian wars, in addition to the hardships of the service, saw themselves in a class that was barred from the high rewards of their profession by men who entered at higher rank and earlier age from civil life.

EARLY INDIAN WARS, 1811 TO 1835.

In 1811 the troubles in the Northwest Territory, arising from the leadership of Tecumseh and the Shawnee prophet, culminated in the battle of Tippecanoe, Ind. The Indians boldly attacked the camp of the troops, but were beaten off and their town destroyed. The Fourth Infantry, to the number of 300, happened to be placed in such a position as to render the most service and encounter the most danger, and eminently distinguished itself. "In short, sir," says the commanding general in his report, "they supported the fame of American Regulars." George P. Peters commanded a company and was wounded. Henry A. Burchstead was wounded. Oliver G. Burton was present. The loss of the regiment was 25 per cent of those engaged.

At Maguago, Mich., the same officers were engaged with the regiment in the following year. The enemy were defeated with a loss to the Fourth Infantry of 58 in killed and wounded. Peters was again wounded here.

Ensign George Ronan, First Infantry, was the first of the graduates to lose his life in battle, on August 15, 1812, when the command to which he belonged was destroyed by a large force of Indians and English, within the present limits of the city of Chicago, while on the march from Fort Dearborn, Ill., to Detroit, Mich. The wife of one of the officers, in describing her experiences, thus gives us our last view of this young soldier:

> I pointed to Ensign Ronan, who, though mortally wounded and nearly down, was still fighting with desperation on one knee.
>
> "Look at that man," said I; "at least he dies like a soldier."

In 1813–14 the Creeks attacked Fort Mims, Ala., and massacred its garrison. In the campaign that ensued the Indians fought with bravery, but showed an entire lack of mobility in the field. They attempted to defend themselves in their villages and rudely built forts. In every case they were easily located and surrounded and their defenses stormed. The general in command stated in his official report that he was "determined to exterminate them," and he had succeeded quite well in his object when they humbly begged for peace.

The principal battle was won by the regular infantry, but we do not know of any graduate who participated.

Lieut. Henry A. Burchstead, Second Infantry, already wounded at Tippecanoe and further distinguished in the Northwest, was killed in the attack on the Autossee towns, Alabama, on November 30, 1813. Lieut. Hippolite H. Villard, Second Infantry, was commended in the dispatches of the commanding general for his services in the defense of Fort Bowyer, Ala., in 1814. Lieut. Joseph M. Wilcox, Third Infantry, was sent on a canoe scout with 5 men in January, 1814. His canoe was accidentally upset, his ammunition was wet, and two of his guns were lost. In this condition they were attacked by a force of Indians. The last seen of Wilcox is thus described by the only survivor: "They continued defending themselves until their gallant leader was shot through the body, and even thus he, though mortally wounded, pursued one of the savages into his canoe, knocked him down with his rifle, and put him overboard into the river." The legislature has preserved the memory of Wilcox by giving his name to the county where these events occurred on the Alabama River, between Canton and Prairie Bluff.

In 1817–18 we had the first war with the Florida Indians. An army crossed into Florida, then a Spanish possession, and defeated the Indians in several engagements. As they seemed to have received aid and encouragement from the Spanish authorities at San Carlos and San Marcos de Barancas, one of which was the Spanish seat of government, those posts were captured.

In the wars in the northwest, and with Creeks and Seminoles in the south, portions of the Regular Army were engaged about twenty-five times, but for reasons which we have mentioned the half-dozen officers here named appear to have been the only graduates of the Military Academy who were present.

In 1823 an expedition was made by the Sixth Infantry against the Arickaree Indians on the upper Missouri, 700 miles above Council Bluffs. The Indians lived in fortified villages and cultivated large fields of corn. The villages

were attacked and easily captured. Lieuts. Nicholas Cruger, Thomas B. Noel, and W. W. Morris, of the Sixth Infantry, were specially noticed in the reports of the campaign, and the President said that he was highly pleased with the good conduct of the officers, but deemed it inexpedient to confer any brevets.

In 1827–28 an expedition consisting of portions of the First, Fifth, and Sixth Infantry regiments was sent against the Winnebagoes of Wisconsin, who had been accused of murdering white people. The Indians surrendered and a number were executed by the civil authorities. Red Bird, the chief, died in prison.

In 1829 a battalion of four companies of the Sixth Infantry was detailed to escort the annual caravan of traders to the Mexican line on the Santa Fé trail. On this trip we have the first appearance of the Comanche Indians of the plains, who were in the South what the Cheyennes and Sioux were in the North. At Chouteau Island the camp was attacked by 500 of these warriors, with a loss to the troops of 2 soldiers killed and 12 horses and 50 oxen driven off and killed. Right royally did these wild riders make this their first bow to the serene skirmishers of the American battle line. They were gay with bonnet, paint, and breechclout—with feathered plumes, brass rings, and beaded quiver. Wild with excitement they rode their fine horses at breakneck speed over the roughest ground, their lean and naked bodies bending to every move and flashing in the light as they shot along. As they dashed by the troops they extended themselves on the right side of the horse, hanging by the foot and arm—the left arm, which carried the bull's-hide shield, passed around the horse's neck—while beneath the neck they rapidly discharged their arrows. Now concentrating for action, now separating at the least show of strength, now daring a thousand of your shots, now flying like frightened deer at the pointing of a gun, they seemed reckless and timid by turns. If one was shot two others instantly stopped, remounted him, and rode off sustaining him on either side. It was in saving their dead and wounded that they took the greatest chances.

One of the officers has given us his sentiments on this occasion in these words:

> I was stung by the contempt which these well-mounted savages showed for our powerlessness on foot to avenge the disgrace which they had inflicted on us.
>
> It was a humiliating condition to be surrounded by these rascally Indians who by means of their horses could tantalize us with the hopes of battle and elude our efforts; who could annoy us by preventing all individual excursions for hunting, etc., and who could insult us with impunity. Much did we regret that we were not mounted too.

On this occasion Lieuts. Philip St. George Cooke and James F. Izard were conspicuous.

In 1831–33 the Sacs and Foxes under Black Hawk seemed likely to involve the entire West and Northwest in a great war. Having passed through the form of a treaty by which they sold 8,000,000 acres of the finest land in the country for about $1\frac{1}{2}$ mills per acre, they went on a hunt and returned to find their villages already occupied by the white men. Refusing to leave they were induced to comply by a strong exhibition of force and moved to the land selected for them at the west of the Mississippi. The next year they returned again, saying that their intentions were peaceful. Whether this was true or not, hostilities were precipitated by an attack by some volunteers commanded by Major Stillman, the subsequent proceedings whereof have been immortalized by the name "Stillman's Run," still preserved in that locality. The Indians then committed many depredations and a large force was sent to punish them. Encumbered by their women and children, and suffering greatly for food, they did not show great persistence or courage in the field. They retreated before the troops through a country where they could easily have stopped them. Finally they reached the Missouri River, where they were severely defeated and driven across.

In this campaign Lieut. Albert Sidney Johnston, Sixth Infantry, was conspicuous as adjutant-general and aid-de-camp to the commanding general, writing the orders of the day and the final report of the campaign. Lieut. Jefferson Davis, Sixth Infantry, succeeded in capturing the Indian chief, Black Hawk, and conducted him to Jefferson Barracks.

Davis acted as mustering officer of the volunteers at this time, and is supposed to have mustered Abraham Lincoln into the military service of the United States.

For the first time, thirty years after the first class graduated at the Military Academy, we begin to see evidence of its existence by the appearance of its graduates in some numbers on the Indian frontier. There were 26 of them in this campaign, but the highest in rank was a captain, and there were only four as high as that.

FLORIDA WARS.

The cession of Florida in 1821 was followed in a few years by the most monotonous and exasperating of all our Indian wars. The Americans were eager to occupy the mysterious land where the Spaniard had hoped to hide from death and which he had named for its flowering savannahs, which never ceased to bloom. The Indians were fully prepared to die rather than live in any distant wilderness where the white man had decided to send them. The Indians were well armed with the firearms of the day and had possession of all the best land, which they cultivated to a considerable extent. They were proud and self-reliant and believed that God had made them from the sands of Florida, and that after they were dead their people would dance and sing around their graves and tell the story of their deeds. There were Tallahassies, Mickasukies, Uchees, Seminoles, and others; but the last gave the name to the war.

Florida contained about 47,000 square miles of land, mostly sandy and so flat that the water instead of running off collected in great ponds and lakes and sluggish streams. The main features of the country were swamp, jungle, and sand heaps. The swamps extended from a few feet to many miles in extent, sandy or marshy bottom, shallow or deep. They grew canebrakes, pond lilies, great cypress and mangrove trees, and a giant grass as high as a man's head, whose saw-like edge cut the body and clothing. Where the ridges of sand rose above the swamp the pine tree took possession of alternate wastes of barren land. The jungle,

incorrectly called "hammock," was thickly grown with live-oak and scrub, thick vines, and hanging moss. Here the Indian built his hut, cleared a bit of land, and planted corn, rice, and pumpkins. Fish, game, and bananas abounded. Snakes, alligators, fleas, chiggers, and mosquitoes disturbed him not. Many of them owned negro slaves, who cultivated the land on shares, and were practically free.

The country was unmapped and unknown. Even the best Indian guides had small knowledge of its darkest corners, its hidden hammocks; trails were easily obliterated, ambush was easy. A day's march led the men plodding through swamp in mud and water up to the waist, stumbling through thicket, where every instant had its peril and taxed the physical endurance of the men to the limit. Sailors and marines, dragoons, infantry and artillery, all took their trick at walking, riding, and boating, often carrying their rations on the back and the ammunition on the ends of their muskets. The first intimation of the presence of the enemy came along with a volley into the head of a column, and the Indians then disappeared before a solid attack could be made.

The Florida war lasted about seven years, beginning in 1835. We expended about $20,000,000, not counting the cost of the Regular Army, called 20,000 volunteers into the field, and employed at one time more than 4,000 Regulars. The Indians had about 1,600 warriors and also used as such about 250 negro slaves. They were gradually killed, kidnapped, or persuaded to go to their new reservations, until there remained about 100 men at the close of 1842.

The cause of the great expense and length of the war was the small size of the Regular Army, which did not number more than 6,000 men at any one time. Then, too, no one could appreciate the size of the task. Whenever an extra effort was to be made a lot of militia was called out for a few months, who spent most of the time getting ready to start and then in preparing to quit. They never had time to acquire the discipline and experience which alone would have made them valuable as soldiers.

The authorities made attempts to remedy their vain economy in not sending a sufficient number of good troops by

changing commanders every few months. There seemed to be a helpless struggle to find a commander like Roderick of old, who could blow a blast upon a bugle horn that was worth a thousand men. The result was that some of the best soldiers in the country, perhaps some of the poorest as well, were given the chance to end the war and failed. A plan that promised good results was to divide the infested region into military districts, each about 20 miles square, at the most eligible point of which was to be placed a detachment of cavalry and infantry. The troops were to scout the surrounding country every alternate day, and probably, if sufficient troops had been used, the war would have been soon ended. An act of Congress interrupted the execution of the scheme and directed that the war be ended by peaceable means. The peace lasted only long enough for a war party to go from the peace conference to the massacres of the Caloosahatchee and elsewhere in southern Florida.

There were about 80 engagements involving loss in killed or wounded on one side or the other. The total number of deaths among the Regular Troops was 77 officers and 1,381 enlisted men. There were 239 killed and 327 wounded. Among the graduates of the Military Academy I notice the following:

OFFICERS KILLED.

Lieut. Col. Alexander R. Thompson, Sixth Infantry, commanding the regiment at the battle of Okeechobee. Although he received two balls from the fire of the enemy early in the action which wounded him severely, he appeared to disregard them and continued to give his orders with his usual coolness until he received a third ball which instantly deprived him of life.

Maj. David Moniac, Mounted Creek Volunteers, was killed while leading the advance party of his regiment at the battle of Wahoo Swamp. He was a full-blooded Creek Indian chief, who had graduated in 1822, returned to savage life, and volunteered with his people at the beginning of the war.

Capt. George W. Gardiner, Second Artillery, was in Dade's command December 28, 1835. The senior officer being killed

at the first fire, Gardiner took command. During a lull in the firing, with the 30 men left, he threw up a triangular breastwork of logs. It was here that the last cartridges were fired and they were killed at their posts, Captain Gardiner being next to the last surviving officer.

Capt. Joseph van Swearingen, Sixth Infantry, was killed in the advance of his regiment at Okeechobee, where the Sixth Infantry bore the brunt of the battle.

Lieut. Walter Sherwood, Seventh Infantry, was killed while defending the wife of a brother officer, for whom he commanded an escort, attacked by Indians at Martins Point Hammock. Several of the party saved themselves by flight, but he would not.

Lieut. William Hulbert, Sixth Infantry, was killed while scouting near Fort Frank Brooke.

Lieut. John P. Center, adjutant Sixth Infantry, was killed in the advance of his regiment at Okeechobee.

Lieut. William E. Basinger, Second Artillery, was the last officer killed at the Dade massacre. When the last shot had been fired the Indians rushed in and tomahawked the few who were still alive. Halpatter Tustennuggee, who was one of the leaders in the Indian attack, said afterwards: "They had guns, but no powder; we looked in the boxes and found they were empty."

Lieut. Robert R. Mudge, Third Artillery, was killed on the same occasion, being mortally wounded at the first fire, receiving several more shots before he died.

Lieut. Richard Henderson, Second Artillery, died on the same occasion. He had his left arm broken at the first fire, but fired 30 or 40 shots from his musket before he was killed.

Lieut. John L. Keais, Third Artillery, was killed on the same occasion. He had both arms broken at the first fire and was quite helpless when he was tomahawked at the final rush.

Lieut. Francis J. Brooke, Sixth Infantry, was killed in the advance of his regiment at Okeechobee.

Lieut. James F. Izard, First Dragoons, was serving as a volunteer with Gaines's expedition and commanded the advance guard at the Withlacoochee River. While reconnoitering the crossing at the ford he was mortally wounded.

OFFICERS BREVETTED.

Capt. John J. Abercrombie, First Infantry, was made a brevet major for gallant and meritorious conduct:

Lieut. James W. Anderson, Third Artillery, a brevet captain for gallant and successful conduct:

Lieut. Robert Anderson, Third Artillery, a brevet captain for gallant and successful conduct:

Capt. George Andrews, Sixth Infantry, a brevet major for gallant and good conduct. He was severely wounded at Okeechobee:

Lieut. Ripley A. Arnold, Second Dragoons, a brevet captain for gallant conduct:

Lieut. Philip N. Barbour, Third Infantry, a brevet captain for active and highly meritorious services:

Lieut. Horace Brooks, Second Artillery, a brevet first lieutenant for active and highly meritorious services:

Capt. Harvey Brown, Fourth Artillery, lieutenant-colonel of the regiment of mounted Creek Volunteers, a brevet major, for gallant conduct on several occasions and for general efficiency:

Lieut. Franklin D. Callender, Ordnance Department, a brevet first lieutenant, for active and highly meritorious services:

Capt. Thomas Childs, Third Artillery, a brevet major, for planning the attack on the Indians at Fort Dranè, and a brevet lieutenant-colonel for gallant conduct and repeated successes. Men like Captain Childs, like Buck Fanshawe, only needed room according to their strength; but that is not always easy to get:

Maj. Alexander C. W. Fanning, Fourth Artillery, a brevet colonel, for gallant and meritorious conduct in the battle of the Withlacoochee He commanded at the defense of Fort Mellon, on Lake Munroe:

Lieut. Justin Dimmick, First Artillery, a brevet captain, for gallant and meritorious conduct. At Hernandez's plantation, during a skirmish with Indians, he was directing his men on horseback, when he was set upon by two Indians from different directions. They fired simultaneously and

wounded him in the leg, at the same time bringing down his horse. Disengaging himself with great activity, he gained his feet just as his assailants rushed upon him to get his scalp, thinking their fire had killed him. Dimmick shot one dead and dispatched the other with his sword:

Lieut. William H. Fowler, First Artillery, a brevet first lieutenant for gallant and good conduct. At Jupiter Inlet, January 15, 1838, he commanded a force of 25 men acting with the Navy in attacking an Indian encampment. A large force of Indians was developed and the command fell back to its boats covered by the Regulars. Lieutenant Fowler was wounded in the thigh, and while being carried to the rear received still another wound:

Lieut. Joseph E. Johnston, Fourth Artillery, a brevet captain for gallantry on several occasions. At Jupiter Inlet he commanded the rear guard after Lieutenant Fowler was disabled, and was credited by the naval commander in his report with securing a safe retreat for the main command. He was wounded twice—the first of many wounds. His coat, hat, and sash—worn on this occasion—showing 30 bullet holes, were preserved for many years by his family. Fourteen out of the 25 men were killed and wounded:

Lieut. William G. Freeman, Fourth Artillery, a brevet first lieutenant for gallant services:

Capt. William M. Graham, Fourth Infantry, a brevet major for gallant and good conduct in the affair of the Withlacoochee. Although severely wounded early in the engagement he continued to head his company until he received another severe wound, when he was taken from the field. For other actions he was highly commended, and a decade later, while leading a regiment to the assault in the next war, he was killed, having been struck eight times and his horse five times:

Lieut. Campbell Graham, brother of William M., who commanded the adjacent company at the Withlacoochee, was likewise severely wounded early in the fight but continued with his men until another wound forced him from loss of blood to retire from the field. He received the brevet of captain:

Lieut. Weightman K. Hanson, Seventh Infantry, a brevet captain for meritorious conduct and gallantry. He commanded at a skirmish at Waccahoota:

Maj. Julius F. Heileman, Second Artillery, a brevet lieutenant-colonel for gallant and good conduct in the affair of Micanopy, where he commanded. It was an empty honor for him, as he died on the day following the fight from the effects of overexertion in the battle. He was one of the earliest graduates of the Academy, and had seen more service than most of the commanders in the war:

Lieut. Alfred Herbert, First Artillery, a brevet first lieutenant for gallantry and good conduct on several occasions. At Ridgeley's Mill, on July 27, 1836, with 15 men he attacked a much larger force of Indians on their own ground. Loading with buckshot, 18 to each musket, he continued the action for over an hour, when he found his ammunition to be almost exhausted. He then retired to his boats with half of his men wounded.

At Fort Drane Herbert and others did some excellent service. The regimental historian thus records the affair:

They were charged by the right division on horseback in every direction; several were killed and rode over; a few extra shots were fired by the men into those who showed signs of life. The left, commanded by Captain Childs, also rode down and killed one savage on their way to join the other troops. Two more were killed and rode over by Acting Adjutant (William H.) Betts while bringing up the reserve, when himself and four of his men were wounded by a volley of rifle shots fired from the edge of the hammock by the Indians. One of the men stopped to take the rifle from an Indian, which detained him until the division had passed. He spurred forward, but found himself among the Indians. He attempted to retreat, but found himself pursued by five Indians. He was discovered by Lieutenant (Alfred) Herbert, who was coming over the crest of a hill, and who spurred to his relief, followed by a few of his men; but before he could reach him the poor fellow was shot from his horse, and the savages struck a tomahawk into his head and would have scalped him had not Lieutenant Herbert arrived in time to prevent it. Lieutenant (James R.) Irwin attempted to cut off their retreat but they were too near the hammock and escaped. Irwin and Herbert carried off their mangled companion, who had six balls through his body, and Herbert secured the contested rifle that had cost the life of a brave soldier.

Irwin was given a brevet of captain and Betts was not recognized, for what reason I know not, unless it was because he resigned and died shortly after.

Lieut. Douglass S. Irwin, Third Infantry, a brevet first lieutenant for gallant and good conduct:

Lieut. John F. Lee, First Artillery, a brevet captain for gallant and good conduct. At Hatcheeluskee he swam the stream, and was one of the five who first crossed in the face of the enemy:

Capt. Richard B. Lee, Third Artillery, a brevet captain for gallant and good conduct in the affair of Micanopy, where he was twice severely wounded:

Lieut. Thomas B. Linnard, Second Artillery, a brevet captain for gallant conduct, activity, and enterprise:

Lieut. William S. Maitland, Third Artillery, a captain by brevet for gallant and meritorious conduct in the affairs of the Withlacoochee and Welika Pond. He was severely wounded at the battle of Wahoo Swamp, and was commended in the reports of the action. His wounds brought on temporary insanity, during which he drowned himself while on sick leave of absence. For his age he was one of the most conspicuous in the army of Florida:

Capt. John Munroe, Third Artillery, a brevet major for faithful and meritorious conduct during three campaigns:

Capt. William W. Morris, Fourth Artillery, a brevet major for gallant conduct. At Hatcheeluskee he was the first to cross the stream, and in the pursuit he constantly led the van:

Capt. Thomas Noel, Fourth Artillery, a brevet major for gallant and meritorious services at the battle of Kissimmee:

Capt. Gabriel J. Rains, Seventh Infantry, a brevet major for gallant and meritorious conduct in action near Fort King, where he was severely wounded:

Lieut. Samuel Ringgold, Third Artillery, a captain by brevet for meritorious services, activity, and efficiency:

Lieut. Frederick Searle, Fourth Artillery, a major by brevet for gallant and good conduct on several occasions. At Hatcheeluskee he was one of the five who first crossed the stream. At Wahoo Swamp he was mentioned for gal-

lantry. On the road from San Augustine to Piccolata he was ambushed and severely wounded and never recovered:

Capt. Washington Seawell, Seventh Infantry, a brevet major for meritorious services:

Lieut. George H. Talcott, Third Artillery, a brevet first lieutenant for gallant conduct on several occasions:

Lieut. George Taylor, Third Artillery, a brevet captain for gallant and meritorious services:

Lieut. George H. Thomas, Third Artillery, a brevet first lieutenant for gallant and good conduct:

Capt. Daniel D. Tompkins, First Artillery, a brevet major for gallant and meritorious conduct. He was recommended for gallantry by the legislature of the State of Florida, particularly for San Velasco, where he charged and beat the enemy with an inferior force:

Lieut. William H. T. Walker, Sixth Infantry, a brevet first lieutenant for gallant and good conduct. At Okechobee he was wounded by three balls, making five wounds:

Lieut. Robert H. T. Whiteley, Second Artillery, a brevet captain for gallant conduct:

Capt. George Wright, Eighth Infantry, a brevet major for meritorious conduct, energy, zeal, and perseverance:

OFFICERS WOUNDED DURING THE WAR, WHO RECEIVED NO BREVETS.

Lieut. William W. Mackall, First Artillery, severely wounded from ambush at New Inlet:

Lieut. John L. Hooper, Fourth Infantry, wounded through the arm at Okechobee, but continued on the field at the head of his company until the end of the battle. He was mentioned by the commanding general in his report:

Lieut. William H. Betts, First Artillery, wounded at Fort Drane:

Lieut. James Duncan, Second Artillery, wounded at the crossing of the Withlacoochee:

Lieut. Henry Prince, Fourth Infantry, wounded at the crossing of the Withlacoochee:

OFFICERS RECOMMENDED IN OFFICIAL REPORTS, BUT NOT BREVETTED.

Capt. George A. McCall, recommended for brevet major, being highly accomplished, full of zeal, intelligence, and capacity:

Capt. Silas Casey, Second Infantry, recommended for brevet major as an officer of rare merit; has seen much and rendered very valuable service; equally intelligent and persevering in pursuit and combat with the enemy. He commanded the advance at Pilaklikaha:

Lieut. Isaac V. D. Reeve, Eighth Infantry, recommended for brevet captain; distinguished in battle and for zealous and intelligent performance of duty:

Lieut. Edward J. Steptoe, Third Artillery, distinguished for intelligence and capacity for service; constantly in the field and often in combat:

Lieut. Samuel Woods, Sixth Infantry, commended by the commanding general in the report of the battle of Okechobee, where he served as a company commander a couple of months after graduation:

Lieut. George C. Thomas, Fourth Artillery, commended for good conduct at the defense of Fort Mellon, and reported as one who always volunteered his services on every dangerous scouting party:

Capt. John R. Vinton, Third Artillery, specially mentioned for his conduct and courage at the defense of Fort Mellon:

OFFICERS WHO DIED OF DISEASE AND OTHER CAUSES INCIDENT TO THE SERVICE WHO WERE NOT INCLUDED IN THE LIST OF BREVETS.

Lieut. Thompson B. Wheelock, First Dragoons. He had severe service on the Plains with the regiment, distinguished himself at Micanopy, and died by suicide a few days after the action during a fit of insanity caused by sickness:

Capt. John F. Lane, Second Dragoons, while serving as colonel of the regiment of mounted Creek volunteers, killed himself by falling on his sword during a fit of temporary insanity:

Capt. James A. Chambers, Second Artillery, died of disease. At Hatcheeluskee he was one of the five who first crossed the stream in the presence of the enemy:

Lieut. Thomas B. Adams, Second Artillery, died at Fort Dade in 1837:

Capt. William B. Davidson, Third Artillery. He was complimented for his conduct in the defense of Fort Mellon. While on the Everglade expedition of 1840 he was taken with fever and died:

Lieut. Daniel S. Herring, Third Artillery, died of yellow fever at San Augustine, 1836:

Lieut. Rowley S. Jennings, Third Artillery, died of yellow fever at San Augustine, 1839:

Lieut. Benjamin Poole, Third Artillery, died of yellow fever at San Augustine, 1839:

Lieut. George C. Rodney, Third Artillery, died of yellow fever at San Augustine, 1839:

Lieut. Job R. H. Lancaster, First Infantry, killed by lightning while scouting near Crystal River, 1841:

Capt. Enos G. Mitchell, First Infantry, died at Fort Roger Jones, 1839:

Lieut. James McClure, First Infantry, died at Fort Brook, 1838:

Lieut. John W. McCrabb, Fourth Infantry, died at San Augustine, 1839, while on duty in the Quartermaster's Department:

Lieut. Charles H. E. Spoor, Fourth Infantry, died in New York, 1836, of disease contracted in Florida:

Lieut. John Conrad, Sixth Infantry, died at James Island, 1838:

Lieut. George H. Griffin, Sixth Infantry, died at Tampa, 1839:

Capt. James R. Stephenson, Seventh Infantry, died at Palatka, 1841:

Lieut. John M. Harvie, Eighth Infantry, died at Cedar Keys, 1841:

Lieut. Henry Wardwell, Eighth Infantry, died at Key Biscayne, 1841:

Lieut. Alexander D. Mackay, First Artillery, lost his life in a steamboat explosion at the mouth of the St. Johns River:

Lieut. Charles B. Chambers, First Artillery, wandered away out of his mind, leaving San Augustine on horseback, being

picked up at Baton Rouge many days after, naked and crazy; dropped for desertion, 1838.

One of the brilliant events of the Florida war was the attack by the Sixth Infantry at Okeechobee. The brunt of the action was sustained by five companies of that regiment. Its commander and adjutant were killed. Every officer except one, as well as most of the noncommissioned officers, including the sergeant-major and four first sergeants, were killed and wounded in the charge of these companies. One company had only four men uninjured.

At the Withlacoochee more than 25 per cent of the Regular troops were killed and wounded, while a large force of volunteers were present and could not be gotten into action.

On departing for the Everglade expedition in December, 1840, the commanding officer, in taking leave of the department commander, announced with almost unnecessary publicity that he would return with the scalp of Chai ki ha, who had murdered the family of Mr. Perkins. He also purchased a coil of new rope which he said was to be used in hanging the Indians he expected to catch. Both promises were fulfilled. Chai ki ha was killed in single combat by a soldier and scalped; 16 warriors were hung after they had surrendered. These measures had the result of ending the war in that region.

Among the methods used for locating the savages was that of trailing them with Spanish bloodhounds. Contradictory reports were given as to the result. Some said that the dogs, being used to negroes, would not take the trail of Indians. Others claimed that the dogs did good work. At all events, the public went quite wild over the matter, ignoring the fact that dogs were quite commonly used in hunting negroes and criminals.

No excuse, however, should be offered for the abuse of the flag of truce, which was begun by a general officer and followed by several others. The Indians, supposing themselves to be masters in the art of deceit and also being tired and thirsty, would visit a post under a flag and say that they wanted to make peace and emigrate. Their only object was

to get rations and whisky, principally the latter, so the troops would play the game for a while and then kidnap a lot of the Indians and ship them off to Indian Territory.

The war, which ended in 1842, broke out again in 1855–1858 in the region about the Big Cypress Swamp and the Everglades. About ten actions were fought, Col. Gustavus Loomis, Fifth Infantry, again declared the war closed in 1858, when he shipped 165 men, women, and children to the Territory. A small remnant still cling to their Pai hai o kee—grass water—somewhat cowed at last, but swearing that they have never been beaten.

In the first of the fights last mentioned Lieut. George L. Hartsuff, Second Artillery, was attacked by a large party while on a surveying expedition with ten men in the Big Cypress Swamp. At the first fire his party was nearly annihilated, but Hartsuff, with two men, managed to reach some shelter behind the wagons where they kept up firing for a time. Here both the men were shot, and Hartsuff, who had been already shot through the arm and been severely shocked by a bullet which struck his pistol handle at the waist, received a bullet in the chest. The party then separated and Hartsuff dragged himself into the saw grass of the swamp, where he was concealed, and the Indians were afraid to follow him too closely. For nearly three days he lay helpless, close to the scene of the conflict, 50 miles from his friends, without food. He finally succeeded in crawling by slow stages 15 miles in the direction of the fort, the saw grass causing him even more suffering than his wounds. Concluding that his end had come, he tore a leaf from his notebook, wrote in blood his name and the date and place of his disaster and pinned it to his knee. As he thus prepared for death his ears caught the faint and distant roll of a drum. Then he knew that a search party was near and he made one more effort. His pistol had gotten wet in the water, so he took it from his belt, unloaded it as best he could in his crippled and weak condition with the unhurt hand, and let the powder dry in the hot sun. Reloading, he waited until he heard the drum again and when it stopped he fired. Then he fainted, but the shot was heard and he was found.

Hartsuff's life was strangely filled with narrow escapes in no respect less thrilling than this, but he always showed the same self-reliance and coolness. The bullet he received in the chest in Florida was never extracted and probably caused his death from pneumonia twenty years later.

Lieut. Edmund Freeman, Fifth Infantry, was severely wounded while reconnoitering the Garden Hammock, near Bow-Legs' town, in 1857. He had a small party and was in great danger when he was relieved by Capt. C. L. Stevenson, with his company, who defeated the Indians.

THE PLAINS PRIOR TO THE WAR WITH MEXICO.

During the years immediately preceding and following the Florida war the regiment of Dragoons which was not there employed was watching the western frontier. By rapid movements on several occasions the troops placed themselves in position to prevent hostilities, notably with Pawnees in Indian Territory, Osages in Missouri, and Cherokees in Arkansas. By ceaseless activity, without rest summer or winter, putting recruits in the field before they had time to learn the squad drill, they kept the frontier comparatively quiet. Particularly noticeable at this time was the Pawnee expedition, in which one-fourth of the command, including the commander, died of fever, and the expedition to the South Pass via Fort Laramie and Bent's Fort which marched about 2,300 miles in ninety-nine days. In these expeditions the troops became familiar with the farthest limits of our domain and first came in contact with the Cheyennes, Arapahoes, and Sioux at their best.

TEXAS, 1849–1861.

In Texas it is probable that wars with Indians had existed ever since the Spanish conquest, but they were intensified in number, bitterness, and cruelty by the advent of colonists from the United States shortly after the separation from Spain. The coast tribe of Caranchua Indians seem to have been destroyed as early as 1825, while wars with the plains Indians continued unremittingly. Under the presidency of

Lamar the policy was to annihilate and drive the Indians from the country. This idea was ably enforced by Albert Sidney Johnston, the secretary of war of the new republic. Under his control many expeditions were organized and successfully prosecuted. In one of these the Cherokees were driven out of the State, and their head chief killed in a decisive engagement on the Nueces River, at which Johnston was present. So violent were the passions of the people that they set upon a lot of Comanche chiefs who came to San Antonio on a peace conference and killed them all.

Immediately after the Mexican war our troops continued the old strife with the Lipans and Comanches. From 1849 to 1855, inclusive, there were fifteen engagements between the Indians and detachments from a half dozen regular regiments.

Lieut. Montgomery P. Harrison, Fifth Infantry, was killed in 1849 near the Colorado River, in Texas, while on the march to Santa Fe, N. Mex.

Lieut. Charles G. Merchant, Eighth Infantry, while on the march to Fort Inge, was severely wounded in a skirmish with Comanches near Leona.

In an action near the Nueces River, in the summer of 1850, Brevet Capt. James Oakes, First Dragoons, was twice severely wounded. From one of the wounds he has never recovered, and on account of it he was obliged to decline a brigadier-generalcy at the beginning of the civil war.

In a combat near Mount Diavolo, Lieut. Eugene A. Carr, of the Mounted Rifles, was severely wounded by Mescalero Apaches.

Near Lake Trinidad, Lieut. George B. Cosby, of the Mounted Rifles, was severely wounded in a skirmish with Comanches.

Capt. Stephen D. Carpenter, First Infantry, while on an expedition in search of timber for building purposes at Fort Stockton, was attacked and wounded.

At the close of this period the Indians had murdered and pillaged as far down as the Blanco and even below San Antonio. The army commander said to the Military Committee of the House of Representatives on the subject of these matters: "In

Texas the Indian hostilities have been more destructive than elsewhere."

This state of affairs led to the formation of two new regiments of cavalry and two of infantry. About one-half of the officers were appointed from civil life. The balance were from the Regular Army, being given an advance of a grade in consideration of distinguished services in the Mexican and Indian wars up to that time.

One of the new regiments, now the Fifth Cavalry, was ordered to Texas and served there until the beginning of the great rebellion.

In Texas the country was particularly favorable to the depredations of the enemy. On one side was the safe refuge of a foreign country and the friendly alliance of bands of marauders who were in skill and courage only inferior to the Indians. On another side was the equally safe protection of the agencies maintained by a branch of the Government entirely distinct from the military, so that a considerable amount of official formalism had to be worked through before the depredators could be punished. Off to the west stretched the vast "Staked Plains" almost unknown to the whites, but containing many good resting points for those who did know them. The new regiment, upon which most of the work now rested, entered upon it with a desperate energy worthy of the good rule of selection which had filled its roster with so many fine soldiers. During the next six years the regiment fought 40 well-contested engagements with Indians and made hundreds of minor scouts.

Now to run down a Comanche raiding party was no day dream. It was up and away on no notice, with a dozen hard gallopers behind you, short rations in your pack, an empty can, a head high, and a heart for every fate. A trail must be followed, some of the best-mounted desperadoes in the world must be tired out and fought to a finish. Small note was taken of what did not mean a ride of a couple of hundreds of miles, days without food or water, the fierce extremes of heat or cold.

In this service Lieut. Cornelius Van Camp, one of those

fine souls whom fate seems to mark out either for great deeds or for early death, was killed far in the front of his second fight just as fame pressed her goblet to his lip. In the traditions of a regiment which was soon to furnish the commanders of four great armies, there no name is held in greater honor than Van Camp.

Major George H. Thomas, Captains Earl Van Dorn and Kirby Smith, Lieuts. John B. Hood and Fitzhugh Lee were wounded. So soon to be the leaders of thousands, these men and others of their kind were chasing Indians over the plains at the head of a few hard-riding troopers. No doubt lessons were then learned that were soon to carry many a hard-beat line across the fire-swept zone, while nerving other hearts to stop and strive for the cause that was lost. Thirteen enlisted men were killed and 42 were wounded in the combats with the Kiowas, Comanches, Lipans, and Mescalero Apaches. The Comanches were the most numerous and aggressive and were unequaled at that time as riders and fighters.

The Indians were mostly armed with bows and arrows, which accounts for the small number of casualties among the troops, but they were in good force, possessed many horses, and often showed a valor worthy of those happy hunting grounds beyond the stars of which they dreamed. At first the efforts of the troops were confined to following the marauding bands, but after a time a policy was inaugurated of forming expeditions of considerable strength and seeking the Indians in their homes and hiding places. Under this system the two fights of Brevet Major Van Dorn with Comanche Indians at the Wichita village and in the Nescutunga Valley, in which 125 Indians were killed and 400 animals were taken, did much to break the spirit of the hostiles and gave the first appearance of peace to the settlements. We may not stop to chronicle numerous deeds of valor in single combat as when Fitzhugh Lee, James P. Major, and others got their men, or where a single hard driven savage turned on us and potted a major and five men with just his bow and arrows.

Sometimes there was other work, too, as when Major George H. Thomas was obliged to protect the Comanche Agency on

the Brazos River from an attack by 250 settlers led by an ex-Indian agent. There were Mexican bandits under Cortinas and others who had to be driven across the Rio Grande and even followed into old Mexico.

A fair sample of the service of that day is afforded by the fight of Lieut. John B. Hood on Devils River. After making about 200 miles in four days, mostly without water, on the close of the fourth day this officer with 17 men rode up to a small party of Lipans and Comanches who were showing a white flag. Instantly he found himself attacked by three times his force, some mounted, who rushed him with lances, and some dismounted, who, firing with guns and handing them to squaws who ran to the rear to load, kept up the fire with arrows. So close was the fight that one gun was taken from a soldier by an Indian while Indians struck the horses in the face with their shields. Hood went at them with rifles and revolvers as long as he had a shot left, when he drew off, for in those days it was not easy to reload on horseback in the mix-up of a battle. But neither side was in shape to renew the conflict, so the Indians marched off singing their death song, and Hood started for water for his famishing party. The Indians lost 22 killed and wounded; the troops lost 7, including the commander badly wounded.

Detachments of other regiments within the same territory fought about a half dozen engagements during this period. Three of these were commanded by Lieut. William B. Hazen, Eighth Infantry, who had already distinguished himself in Oregon and New Mexico. In one affair he was dangerously wounded, and for his gallantry on several occasions he received the only brevet conferred during the period.

NEW MEXICO, 1847–1861.

In New Mexico, in 1847, shortly after the American occupation, the Mexicans incited the Pueblo Indians of Taos to insurrection, which resulted in the murder of the governor and a number of Americans. The resulting campaign was prosecuted under great hardship, against greatly superior forces in the ancient fortresses of the land. Captain John H. K. Burgwin, First Dragoons, led every attack, and in the

assault of the last stronghold he was killed with 23 of his men. Troop G, First Dragoons, contemporaries of Burgwin, have left us several handsome tributes to his character and service.

At this time Lieuts. Oliver H. P. Taylor, Clarendon J. L. Wilson, Rufus Ingalls, First Dragoons, were brevetted for gallantry. Lieut. Joseph McIlvain, First Dragoons, greatly distinguished himself, but missed a brevet by accidentally shooting himself shortly after. Lieut. Alexander B. Dyer, Ordnance Department, who commanded the artillery, declined a brevet. The leaders of the insurrection were killed and their forces dispersed, and this was the first and last fault of the Pueblos.

Various other tribes kept up a constant turmoil. The worst of them were the Navahos and Apaches of the Mescalero, Gila, Mimbres, Jicarilla, Mogollon, and other bands. The Navahos were not great fighters, but they were expert thieves, lived in an inaccessible country, and had some 2,500 warriors. They had some pretense to civilization, planted considerably, and owned great herds of sheep. With the Apaches they shared a common contempt for the Mexican, whom they regarded as their natural and legitimate prey.

Matters came to a focus with the Navahos in 1858, when an Indian with an attack of "bad heart" walked into Fort Defiance and deliberately killed the negro servant of an officer. As soon as it was seen that the Indians could not or would not deliver up the murderer a strong expedition was sent against them. The operations were principally under the command of Colonel Dixon S. Miles and Major Oliver L. Shepard, the troops consisting principally of mounted rifles and the Third Infantry. For three years the Navahos were constantly harassed by expeditions which slaughtered thousands of their stock, destroyed their homes, and killed many of their men. They were quite impoverished, having formerly been prosperous and wealthy, and they begged for a peace, which was granted, and which has had some permanence.

The Apaches were a far more savage and warlike race. Adding to the instincts of the animal the mental processes

of the human being, they are able to multiply by many times the qualities that are useful in war. They have always been killers, made no friends, sought no allies.

On August 23, 1849, a party of 60 Jicarilla Apaches having come to Las Vegas and demanded powder and balls from the settlement, Lieut. Ambrose E. Burnside, Third Artillery, went out with 29 men to arrest their chiefs. His demand was answered by arrows, so he attacked and severely defeated the Indians. In the engagement Burnside was wounded in the head with an arrow.

On March 30, 1854, a troop of the First Dragoons, commanded by Lieut. John W. Davidson, was nearly destroyed by Jicarilla Apaches and Utes about 25 miles from Fernandez de Taos. About 40 men were killed. Davidson was wounded and by great good fortune managed to escape with 17 men, mostly wounded. In both of these actions the conduct of the officers and men was worthy of high praise, but it served Senator Thomas H. Benton as a basis for attack on the Army during the debate on the increase of two cavalry regiments in 1855. He cited these cases to show the "misconduct and ignorance of officers and men."

Lieut. Col. Philip St. George Cooke, Second Dragoons, took up the trail of the Indians who had beaten Davidson and followed them into the snow line of the continental divide in the dead of winter, and broke them up completely. On this trip Lieut. Joseph E. Maxwell, Third Infantry, lost his life charging at the head of a party of dragoons. He was almost instantly killed with two arrow wounds just as he was about to saber an Indian, having already exhausted his revolver. His men following quickly avenged his death.

Lieut. David Bell, Second Dragoons, was commended on this occasion for distinguished services, the second time within a month. We are told that Bell was conspicuous for extraordinary marches and in action; an accomplished horseman, a great hunter; an admirable partisan leader, a rare compound of bravery and prudence. Evidently he was such a man as Steingel, the Alsatian, whom Napolean described as a model commander of horse, who, like Bell, died at an early age.

It was Bell who avenged upon the Apache chief Lobo the murder of a white family, and the story reads like an annal of the days of joust and tourney.

One day while scouting on the Cimarron he met Lobo and his band. Bell had 22 dragoons mounted in line behind him. Lobo had 22 Apaches, well armed, on foot, also in line with intervals. The chief and the trooper parleyed for a time across the space of 20 yards between them.

At last—Lobo sinking on one knee and aiming his gun and Bell throwing his body forward and reining up his horse—they exchanged shots. Both lines followed the example of their leaders, the troopers spurring forward over and through their enemies. The warriors mostly threw themselves on the earth, and several vertical wounds were received by horse and rider. The dragoons turned short about and charged and charged again. Then the surviving Indians were seen escaping to a deep ravine which had not been noticed before, although it was only 100 or 200 paces off. A number thus escaped, the horsemen having to pull up at the brink, but sending a last volley after the descending fugitives.

In less than five minutes of this strange combat 21 of the 46 actors were killed or wounded. Bell had shot the Indian chief several times.

In 1857 important expeditions were made against the Gila River Apaches under the command of Colonel B. L. E. Bonneville, Third Infantry, and he was thanked in a resolution of the house of representatives of New Mexico.

Brevet Major William N. Grier, First Dragoons, was wounded in a skirmish with Apaches at Too koon kurre Butte November 17, 1849. Evidently this was not the occasion which the poet intended to celebrate in the famous lines—

> Old Billy Grier, bueno commandante,
> Didn't catch the Injuns, because he didn't want to.

On January 18, 1855, Captain Henry W. Stanton, First Dragoons, lost his life at the end of a successful action with Mescalero Apaches. In the ardor of pursuit he became separated from the bulk of the troop with only 12 men. Attacked by a large force, he was killed while endeavoring to cover with his own person the retreat of his party. The tragedy of his

death is rather aggravated by the cold-blooded report of the department commander that Stanton was reckless and was smarting under disappointment in the Mexican war.

Lieut. Benjamin F. (Grimes) Davis, of the Rifles, was shot in the knee in an encounter with a Gila Apache in the engagement of June 27, 1857. In the same engagement Lieut. Henry M. Lazelle, Eighth Infantry, was specially mentioned as charging with the Dragoons, shooting one Indian and cutting down another. In an engagement with Mescaleros in 1859 Lazelle was severely wounded through both lungs, but kept the field until he extricated his command.

Lieut. Alfred Gibbs, Mounted Rifles, was severely wounded with a lance in a skirmish with Apache Indians near Cooke's spring, March 8, 1857.

Lieut. William W. Averill, Mounted Rifles, was severely wounded during a night attack on his camp on the Puerco of the West, October 8, 1858.

Captain Richard S. Ewell, First Dragoons, who was distinguished in a number of affairs, was wounded in a skirmish with Pinal Apaches, December 14, 1859.

In the above I have only been able to notice a few out of seventy or more engagements fought with loss in killed and wounded in New Mexico and near its border up to the time of the civil war.

In the neighboring department of Utah there was much less trouble, on the whole. The most noteworthy loss was the murder of Lieut. John W. Gunnison, topographical engineers, with his entire command, near Sevier Lake in 1853. The murderers were captured in the following year by Lieut. Colonel Edward J. Steptoe, Third Artillery, who turned them over to Mormon civil authorities, by whom they were permitted to escape after a farcical trial. The name of Gunnison and his work will long survive in the snow-clad peak, the remarkable cañon, and the mountain torrent which bear his name.

THE PLAINS, 1847–1861.

For some reason the great flow of immigration to the Pacific slope which followed the discovery of gold was not attended by destructive Indian wars on the Plains. Something over a dozen skirmishes would cover the cases where the troops were employed. By a few determined actions the Plains Indians were quieted for many years, until the surveys and work on the Pacific railways aroused them for a last stand. During all the time, however, they were making rapid progress in the art of war. When they broke out again they were better armed and better fighters to a surprising degree, and to find one of their villages was not the luck of every man who took a summer's ride.

In 1849 Lieut. Charles H. Ogle, First Dragoons, was wounded with an arrow in a skirmish with Pawnee Indians near Fort Kearney, Nebr.

In August, 1853, Lieut. John L. Grattan, with 30 men of the Sixth Infantry from Fort Laramie, Wyo., rode over to the assembled Sioux camps and told the chief that he had an order to arrest an Indian who had stolen a Mormon's cow. In attempting to enforce his order he was killed with every man. A crumbling adobe wall in an almost forgotten bend of the North Platte River recalls the only effort to commemorate the event. History will probably get its judgment from the words of Thomas H. Benton, in the Senate of the United States, in which Grattan was cited as a sample of the "schoolhouse officer and pot-house soldier" sent to treat Indians like dogs and beasts. Remembering the story of the French grenadier, who was reported each day for a hundred years as "dead on the field of honor," we are led to reflect upon the fate of this young officer of our own country, whose highest aim in life and death was to do his duty.

After the death of Grattan the Indians attacked the post of Fort Laramie itself, and the commanding officer, Lieut. Hugh Brady Fleming, Sixth Infantry, was wounded.

In the following year 1,300 cavalry and infantry left Fort Leavenworth, Kans., for the purpose of punishing the Indians for the above attacks. The commander left the post in the

same frame of mind as chronicled on a previous occasion in the Florida war, when he blazed his way through the Everglades with prisoners hanging to the trees. "By God," he remarked, "I am for war—no peace." In a month he reached the camp of the Indians. Refusing to parley, he drove Little Thunder, the chief, from his presence with the information that his warriors had insulted our citizens and murdered our troops, and that now they must fight. Attacking them in front and rear, he killed 83 of them and destroyed their camp. In this battle, called "Ash Hollow" or "Bluewater," the cavalry was commanded by Lieut. Colonel Philip St. George Cooke, Second Dragoons, and the infantry by Major Albemarle Cady, Sixth Infantry.

The earliest trouble with the Cheyennes occurred in 1855, when Captain George H. Stuart, First Cavalry, defeated a band who had attacked a mail party. In the following year an expedition consisting of six troops of the First Cavalry marched against them and found them on the Solomon Fork of the Arkansas. The Indians came up in battle array as if to make a stand, and the cavalry charged in ancient style with sabers. The effect was not great so far as casualties were concerned, but the Indians were dispersed and their principal camp was destroyed. The moral effect was undoubtedly important.

On this occasion Lieut. James E. B. Stuart, First Cavalry, drew the fire of an Indian just as he was about to shoot Lieut. David S. Stanley, of the same regiment, and was himself wounded. Lieut. George D. Bayard, First Cavalry, was dangerously wounded in the face by an arrow during a skirmish with Kiowas near Bents Fort, Colo., while on Major John Sedgewick's expedition to the upper Arkansas in 1860. In these actions no men were more conspicuous than Horace Randall, First Dragoons, and Isaiah N. Moore, of the Rifles. Both of them died early in the civil war.

THE PACIFIC SLOPE, 1847–1861.

On the Pacific slope the Indians were a cruel, craven, and degraded lot, and no high standard was set up so far as faith and mercy are concerned by the white settlers. As the

Indians were not confined to reservations prior to 1857, the whites naturally took the best land in sight, thus placing their claims in opposition to those of the Indians, who also subsisted largely by agriculture. Several bands of white men, calling themselves volunteers, whose real purpose was plunder and murder, kept up a state of terror and committed many black crimes. Upon the Army fell the unworthy task of punishing the Indians for their faults, while the white miscreants hid beneath the giant's robe of American citizenship, like the paltry thieves they were.

Governor Isaac I. Stevens made many treaties with the Indians of the Northwest, and in 1857 a tract as large as New England with Indiana added, was nominally ceded to the Government, at an average price of 4 cents per acre. The Indians were gradually concentrated by force and persuasion, but it was years before the treaties were finally carried out. Stevens's policy has had many critics, and a general of the Army has characterized him as a fatal blunderer. He simply followed the well-defined policy of the Government and does not deserve such harsh judgment.

During the period now under consideration there were about 50 engagements between the troops and the Indians, divided in almost equal proportion between California, Oregon, and Washington.

In 1851 Brevet Captain James Stewart, of the Mounted Rifles, was mortally wounded in a skirmish with Rogue River Indians in southern Oregon. He was a celebrated trooper in his day and will long be a tradition in the old Rifles.

In 1853 Captain Bradford R. Alden, Fourth Infantry, with ten of his men and some citizens, was engaged in a skirmish with Rogue River Indians. He was dangerously wounded while charging at the head of his men. The wound led to his resignation in a short time and he never recovered.

In 1856 an expedition commanded by Lieut. Colonel R. C. Buchanan, Fourth Infantry, consisting of one troop of the First Dragoons, two batteries of the Third Artillery, and four companies of the Fourth Infantry, defeated the Rogue River Indians and forced them onto their reservation. During this campaign Captain A. J. Smith, First Dragoons, with 90 men of

Troop C, was caught at the Big Bend of Rogue River by a large force of Indians, and was held there for thirty-six hours, part of the time without water. He was relieved by Captain Christopher C. Augur, Fourth Infantry, but not until he had lost about one-third of his troop in killed and wounded.

A war between the Yakimas and the Klictitats was conducted by Brevet Major Gabriel R. Rains, Seventh Infantry, and Colonel George Wright brought it to a conclusion. The most serious incident of this war was the engagement at Simcoe Valley, Oregon, in which a detachment of 100 men of the Fourth Infantry was forced to retreat with a loss of nearly one-fourth of the command.

In May, 1858, Lieutenant-Colonel Steptoe, with a command of three troops of the First Dragoons and one company of the Ninth Infantry (159 men in all), while on a scout to arrest some depredators, was surrounded and attacked by an overwhelming force of Spokanes, Pelouses, Cœur d'Alenes, Yakimas, and smaller tribes. The commanding officer concluded to retrace his steps and assigned the duty of flanking the column to Brevet Captain Oliver H. P. Taylor and Lieut. William P. Gaston, First Dragoons. Both of these fine officers were killed. Taylor had already distinguished himself on a number of occasions, while Gaston had only recently joined. The command made a night march of 75 miles, and owed its escape largely to the Nez Percé Indians at the Snake River, where the pursuit was stopped and the troops assisted across.

A punitive expedition was then organized by Colonel George Wright, Ninth Infantry, in September. The Indians were completely routed in three engagements, great herds of their horses were captured and shot, their winter stores of provisions were burned. It was at the outset of this expedition, at the Cascades of the Columbia, that Philip Henry Sheridan, then a subaltern of the Fourth Infantry, first won his spurs and was specially mentioned in orders. Wright had shown energy and ability in the Florida and Mexican wars and three years before in this same field of operations. His services in keeping California in the Union and his death at sea while actively on duty are a part of another story.

Part of the Spokane expedition just noticed consisted of a side scout by Major Robert S. Garnett, Ninth Infantry, which resulted in the capture and execution of some of the murderers of the white miners. A hostile camp was charged at 3 o'clock in the morning on August 15, 1858, in which Lieut. Jesse K. Allen, Ninth Infantry, was killed.

On September 26, 1849, Captain William H. Warner, Topographical Engineers, was killed in the Sierra Nevada Mountains while making explorations of mountain passes for railroad purposes. He had been distinguished (and wounded) in Kearney's expedition in the Mexican war. His body was found pierced with nine arrows. The Warner Range was named in his memory. Captain Nathaniel Lyon, Second Infantry, in 1850, made an expedition to Clear Lake and Russian River in search of the perpetrators of the deed. He made a terrible example of them, killing several hundreds.

An expedition against the Pitt River Indians of northern California was made in 1850 by Lieut. George Crook, Fourth Infantry. He engaged them three times and thoroughly defeated them. In one of the skirmishes Crook was wounded with an arrowhead which pierced his side and was never extracted.

In 1855–1858 the Indians in the Puget Sound district went on the warpath and were subdued by troops under Lieut. Colonel Silas Casey, Ninth Infantry. Lieut. W. A. Slaughter, Fourth Infantry, was killed in an attack on his camp at Brannan's Prairie, December 4, 1855. Lieut. August V. Kautz, Fourth Infantry, was wounded at Brannan's Prairie, and was again wounded a few months later on the White River. Lieut. Horatio Gates Gibson, Third Artillery, was severely wounded at Hungry Hill, October 31, 1855.

Lieut. Edmund Russell, Fourth Infantry, was killed in a skirmish with Indians near Redbluffs, Cal., on March 24, 1853. He had already been wounded and brevetted in the Mexican war.

In July, 1859, some depredations were committed by Klamath Indians in northern California, which were settled by the Klamath chief bringing in the heads of three of the culprits and promising to get the others. As this event is

noticed in the report of the Secretary of War for that year with apparent approval, it may be taken as a satisfactory way of settling such an affair in those days.

CIVIL WAR PERIOD.

The war with Indians which reached the greatest proportions, caused the most terror and destruction, and called forth the greatest exhibition of strength on both sides was the war with the Sisseton Sioux of Minnesota, which involved all the tribes of the great Sioux Nation. In this war the frontier of Minnesota was depopulated, large towns and villages and abandoned, property and crops of 50,000 people destroyed. In Minnesota alone between 500 and 800 white people were killed and hundreds of women and children were in captivity.

We have seen how Grattan with his small party had been overwhelmed, and how Ash Hollow had been followed by a peace with the Sioux at Fort Pierre, on the upper Missouri, in the early fifties. In the spring of 1857 the fire broke out in a new spot. Captain Bernard E. Bee, Tenth Infantry, then reported troubles in the vicinity of Spirit Lake, Minn. It started with the killing of a dog, but before it ended many white people were massacred and a small band of Indians were killed and scattered. At the Sisseton Agency a situation of great excitement and danger was quieted by the prompt arrival of Brevet Major T. W. Sherman, with his battery of the Third Artillery. The major was credited in orders from the headquarters of the Army with "preserving the country from a war with the tribes of the Sioux Nation." How great that service was may be appreciated by a study of later events during the great civil war.

The Sioux occupied the immense country of the two Dakota States, but ranged far beyond their boundaries. Major-General John Pope commanded the district involved, with his headquarters at St. Paul, and he proclaimed a policy of extermination and directed his subordidates not to treat them as a people with whom treaties or compromises could be made.

A number of campaigns were made in which the Indians were defeated with great loss and suffering. They sub-

mitted with deep humility, and gave up their leaders to be tried by military commissions, and the war was supposed to be finished. Three hundred were condemned to death, and when President Lincoln asked which were the most guilty General Pope replied that the only distinction between the culprits was as to which murdered the most people and ravished the most young girls.

The warm-hearted President had just been nagged into asking a pestiferous peace patriot if he expected that a war should be prosecuted "with elder stalk squirts charged with rose water." He could not, however, make up his mind to such a large killing as this, and it was with much delay and reluctance that he finally ordered the execution of 38; and this was the result of that cold-blooded extermination. It may fairly be said that the result was not valuable as a warning or instructive as an example. General Pope's protest that it would have an exceedingly bad effect was justified by the prompt renewal of hostilities on the coming of grass and buffalo in the next spring.

In 1857 Captain Alfred Sully had commanded one of the companies of the Second Infantry at Fort Ridgeley, and had subsequently moved to the Yellow Medicine Agency to reenforce Sherman. In 1863, as a brigadier-general of volunteers, he commanded an expedition of about 700 cavalry against these Indians in Dakota Territory. He defeated them at White Stone Hill with a loss of 100 warriors, and destroyed their camp of 300 lodges with their winter supply of meat. This was a heavy loss to the Indians and induced them to beg for peace.

In 1864 the war broke out with greater violence than ever. Sully was again in the field with 2,200 cavalry and 4 mountain howitzers. At the Tahkahhakully Mountains, at the head of Heart River, North Dakota, he attacked the largest body of Indians ever collected on the continent and inflicted the greatest disaster. On July 28 he came upon their camp of 1,400 lodges, with between 5,000 and 6,000 warriors. The country was wooded and much cut up with rugged hills and impassable ravines. After an hour's talk with some of their chiefs, he moved against them, and they were forced to abandon

their camps, with robes, lodges, utensils, and winter supply of provisions. The work of destroying the camp was in itself a large task. The Indians scattered, leaving 125 dead warriors. The troops lost 15 killed. The Indians were armed with shotguns, and bows and arrows.

In August General Sully again encountered the Sioux, in the Bad Lands of North Dakota, and again killed about 100. These defeats inflicted immense suffering upon the Sioux of that region. Several of the most powerful bands never recovered their prestige. Sully was made a brevet brigadier-general in the Regular Army for gallant and meritorious services against the Indians in the Northwest.

During the civil war there were many outbreaks on the Pacific coast. The troops were for the most part volunteers, and few West Point men were on the ground. General George Wright continued to be the most prominent military personage in that region until he was drowned in the wreck of the *Brother Jonathan*, July 30, 1865. General Benjamin Alvord was commanding in Washington and Oregon.

On May 29 Assistant Inspector-General Nelson H. Davis, while looking for a site for a post, with an escort of 100 men, attacked some hostile Apache rancherias on Mescal Mountains, Arizona, and killed 49. For this action he received the brevet of colonel.

LATER CAMPAIGNS ON THE PACIFIC.

In the winter of 1867–68 General George Crook undertook a campaign against the Pitt River Indians, whom he had such good cause to remember on a previous occasion back in the fifties. He was completely successful after a winter campaign of great hardship in northern California and southern Oregon.

The Modoc war in southern Oregon in 1873 was not long and brought few combatants in the field, but it cost a half million dollars and about 120 officers and men in killed and wounded. The strong position of the enemy in the lava beds or pedregal added immensely to the resisting power of the Modocs and multiplied the labors of the troops. The Indians

under Captain Jack finally abandoned the lava beds and surrendered to Captain H. C. Hasbrouck, Fourth Artillery.

Brigadier-General Edward R. S. Canby, commanding the department, had been opposed to the use of troops in the first place, and when he wanted to use them he was again overruled. Having been ordered to aid the peace commissioners, he was murdered in a conference to which he went, in spite of warning from those who knew the intentions of the Indians, refusing to be armed or to secure his safety by the easy method of deceiving the Indians. There is no doubt that General Canby, as he walked at the head of the peacemakers on that fatal day, had said farewell to life and was giving himself as a victim to his high sense of duty. He was succeeded by Brigadier-General Jeff. C. Davis, who carried the campaign to a conclusion, caught, tried, and hung the murderers.

Among the killed was Lieut. Arthur Cranston, Fourth Artillery, who in the midst of the defeat of April 23 took five men and volunteered to clear a ridge near the command. The party were all killed, and the position of their bodies when found showed that they had fallen in trying to accomplish their task.

Lieut. George M. Harris, Fourth Artillery, was killed on the same day.

In 1877 the war with the Nez Percés, starting in western Idaho and ending in Montana, near the British line, employed all the available troops of three large departments for some months. The Indians under Joseph made a desperate attempt to reach the camp of Sitting Bull in the British possessions, and nearly succeeded. From start to finish with all the loops and fighting returns, they must have traveled more than 2,000 miles in seventy-five days. They fought eleven times and inflicted heavy losses. They crossed an unfordable stream in the presence of an enemy; surprised and driven out of their camp, they made a vicious return, recovered much that they lost and buried most of their dead; stopped on a mountain trail they resorted to diplomacy and won; they got out of the Yellowstone Park by a very pretty piece of strategy; at the last almost all the fighting men got away, while Joseph

surrendered little more than the wounded and women and children. Three regiments of cavalry and a half dozen regiments of infantry and artillery were engaged with the Nez Percés. Considering that the Indian chief had his old men and women and children with him, that he had no supplies of rations or ammunition, no telegraph and no hospitals, there is food for thought in this Nez Percé war which should save it from being lost among the forgotten annals of conquered tribes.

At Craig's Mountain, Idaho, Lieut. Sevier M. Rains, First Cavalry, commanding an advance guard of 12 men, was killed with all his men. And so no more of Rains, pugnacious, great-hearted Rains; but then it is inevitable in our profession, unlike all others, that the fittest have the least chance to survive. The department commander says this of Rains:

> This young officer was of the same mold as the famous Winterfield of history, who was killed in just such fashion under Frederick the Great—prompt, loyal, able, without fear and without reproach. Frederick lost many brave leaders, but only one Winterfield; we, but one Rains.

A few days later General O. O. Howard fought the Indians on the Clearwater. Lieut. Charles A. Williams, Twenty-first Infantry, was severely wounded.

At the Big Hole Pass, Mont., General John Gibbon, with 149 officers and men of the Seventh Infantry and some civilians grappled with the enemy, but they shook themselves free and left him pretty badly used up, with a loss of 69 killed and wounded. Gibbon is an example of the fortune of war in our country. A few years before, in three of the greatest battles in recorded history, he had successively commanded the brigade, the division, and then the army corps which had stood up to the greatest percentage of loss in killed and wounded known in battle. Now after thirty year's service, a colonel of the line, he was fighting with a rifle in his hands, like a private soldier, at the head of less than 200 men.

Gibbon was wounded, and his adjutant, Lieut. Charles A. Woodruff, who had already stopped more than his share of bullets in the civil war, was hit three times. The horses of both men were wounded, and one horse was also eaten.

Escaping from the National Park, the Indians were fought by General Samuel D. Sturgis, with the Seventh Cavalry, but they could not be held though in great distress. Yet a while longer and Joseph was run down by another command, General Howard still following. During the negotiations for the surrender Lieut. Lovell H. Jerome, Second Cavalry, rode alone into the Indian camp, and was made a prisoner and held until the return of Joseph. In the action preceding the surrender nearly 50 per cent of the cavalry engaged were killed and wounded. Lieut. Edward S. Godfrey, Seventh Cavalry, was severely wounded.

ARIZONA AND NEW MEXICO.

Arizona had been a battle ground for many a day when the troops of the United States first raised their flag during the Mexican war. Mangas Colorado and all his breed, Cochise, and many other great marauders kept things hot. During the civil war the Territory was claimed by both factions, the common policy of both being to kill off as many Indian men as possible. One prominent official was enthusiastically in favor of selling the women and children into slavery as an additional means of civilizing the natives. His scheme was pronounced to be an infamous crime by Mr. Jefferson Davis, who would not permit it. The head tax was a source of revenue to adventurous white men on both sides of the line until some one was caught turning in a Mexican for an Indian scalp.

Many disasters fell to the Indians, as they were poorly armed and could accumulate no supplies of food. In the nine years immediately following the civil war there is a record of about 1,500 Apaches killed in Arizona on our side of the line, and probably that average had been kept up for many years before. On the Mexican side a large number of troops were kept in the field, and we know that they also did some harm to the Apaches, although Geronimo claimed that he never wasted cartridges on them, but killed them with rocks. There was never any sign of discouragement on the part of the Indians or a moment when they were not eager for the fray.

Until the arrival of General George Crook, lieutenant-colonel of infantry, they had never been subdued. An ancient civilization seemed to have been wiped out by their ancestors, and even now a great tract of country which had recently been well populated was ruined by their raids. Crook was an old hand at Indian management. He grasped the question with a broader view and deeper thought than any man before or since. His methods were simple. A Dyak of Borneo would not be more inflexible in his punishment, no Prince of Peace could have more patiently examined all their complaints or treated them more honestly and squarely. Unconscious of danger, unmindful of treachery, never misled by deceit, not disturbed by failure, the strongest of them found their wills bend to his. He discovered the possibilities of Indians as soldiers and scouts against their own people, and he was never betrayed.

A few months after the first campaign 2,500 hostiles acknowledged themselves beaten and went to work on their reservations to make a living for themselves, and he had them raising good crops of grain in a short time. It was a wonderful sight, for they were warriors from immemorial tradition and very well satisfied with themselves in that line. As well might we expect to see a brace of tigers hitched to a bull cart as one of these fellows hoeing corn, but the experiment was working perfectly when the Indians were returned to the Indian Department. The pacification of the Territory was then complete, except in the case of the Chiricahuas, who were especially exempted from the General's jurisdiction.

General Crook went to another department, and in about ten years returned again to find the Chiricahuas in Old Mexico and the balance of the Indians on the verge of an outbreak. Proceeding almost alone among the disaffected tribes he quieted their complaints and enlisted about 200 for a campaign against the Chiricahuas. He then marched 900 miles into the heart of the Sierra Madre Mountains of Old Mexico and forced the surrender of the hostiles. His fairness in pacifying the agencies brought a great storm of abuse upon him and proved the insincerity of much of the talk about civilizing the Indian. After discovering that he

could accomplish nothing in the face of the opposition and weak support he was receiving he asked to be relieved.

The record of the Army in Arizona fills many volumes, but we can notice a few events only. Nearly every regiment of cavalry made its trail there. A single regiment in one short tour fought a hundred engagements and killed several hundred Indians; one of the officers being in a dozen skirmishes in a year and a half. Another regiment marched 1,000 miles for each one of its nine years of service there.

Lieut. Franklin Yeaton, Third Cavalry, received his death wound in an action in Sanguinaria Canyon in 1870.

Lieut. Reid T. Stewart, Fifth Cavalry, while alone with one man hurrying to obey an order, pushed ahead of his escort and was ambushed by a party of Apaches in Davidsons Canyon in 1872. His body was found lying in the road pierced with six bullets.

Lieut. Jacob Almy, Fifth Cavalry, having served in the civil war before he was a Cadet and in many Indian fights since, was in command at San Carlos Agency on the morning of May 27, 1873. He had detailed a guard to arrest an Indian who had assaulted the agent, but seeing that the man had not been found he joined in the search himself. This proceeding caused great excitement, the Indians began to handle their arms, and it was plain that trouble was near. Almy, however, knew that any sign of weakness on his part would be bad policy, so he went right ahead, quietly and boldly continuing his search, as if nothing unusual was occurring among the Indians, until he was shot dead in their midst by one braver than the rest, as a signal for revolt.

Fourteen years later Lieut. Seward Mott, Tenth Cavalry, was mortally wounded at the same place in much the same way.

Lieut. Charles King, Fifth Cavalry, was seriously wounded at Sunset Pass, 1874.

Lieut. J. Hansell French, Ninth Cavalry, was killed in the San Mateo Mountains, New Mexico, during the pursuit of Victorio's band in 1880.

In August, 1881, at Cibicu Creek, General Eugene A. Carr, with two troops of the Sixth Cavalry and one of scouts,

arrested a medicine man who was inciting trouble. The scouts here turned on the troops and there was a severe fight, ending in the defeat of the scouts and their allies. This is the only instance we have of treason of the kind.

At Big Dry Wash of Chevelons Fork, in 1882, Major Andrew W. Evans, with a command of the Third and Sixth Cavalry Regiments, had a successful fight with Indians. Lieuts. George H. Morgan and George L. Converse, Third Cavalry, were severely wounded. Evans was brevetted brigadier-general, and a number of other officers in both of these affairs received brevets and medals of honor. Sixteen Indians were killed, and the loss of the troops was more severe than usual.

In 1885 Lieut. George R. Burnett, Ninth Cavalry, was twice wounded in an action at Cuchillo Negro, N. Mex. He received a medal of honor for distinguished gallantry in saving a wounded man on the same occasion.

In 1885 Lieut. De Rosey C. Cabell, Eight Cavalry, was wounded in an attack on his troop by Chiricahua Apaches.

Among the conspicuous individual acts of this period was that of Lieut. Charles B. Gatewood, Sixth Cavalry, in riding alone into Geronimo's hostile camp and calling on him to surrender. He might as well have poked up a wild bee's nest and expected not to be stung as to hope to come out alive, but he did so, strange to relate, with every chance against him. It was only one of many great performances by Gatewood; but he never had a brevet or medal of honor, and died a lieutenant on the retired list after nearly twenty years' service.

Lieut. Powhatan H. Clarke, Tenth Cavalry, distinguished himself by saving the life of a wounded man in one of the engagements with Geronimo.

THE PLAINS, 1866–1876.

The rapid settlement of the tract formerly known as the "Great American Desert" and the energetic construction of the Pacific railroads in the years immediately following the civil war brought the Indians of the Plains to realize the

logical result. Without concert of action or definite purpose, they rallied desperately—Sioux, Cheyenne, Arapaho, Kiowa, and Comanche—to a last defense of their hunting grounds. They were encouraged by the scarcity of troops and the lack of energy in military affairs during the civil war, when all the efforts of the Government were directed into other fields.

On the plains the military posts were garrisoned by cavalry and infantry. Due to the casualties of the great war and to staff details, a great change had taken place in the roster of the regiments. The list of officers seldom contained the name of a graduate below the grade of field officer. In the higher grades there were a number of graduates, taken from the long list of generals of the civil war. Merritt, from the command of a cavalry corps, and Custer, from a division, were serving as lieutenant-colonels. In the ten years immediately following the war the service on the plains was as hard as any in our history; but large commands were seldom formed and most of the work was performed by small detachments, in which, as we have seen, West Pointers cut no figure. There were 20 officers killed on the plains in those years, but the Little Big Horn and Custer at the head of the list furnish the first casualties to occur among the graduates.

In the country north of the Platte the Army was well nigh overmatched by the Sioux under Red Cloud, and the posts on the Oregon trail were abandoned. In the Department of the Missouri hundreds of depredations had been committed and the Army was called on for action. Generals Sheridan and Hancock, fresh from the great war, now found full scope for their talents in an entirely new field and took active command. Sand Creek and Fort Phil. Kearney had given both white man and Indian a fair excuse and a deep thirst for revenge.

To neutralize the pernicious skill of the Indian in the summer it was necessary to attack him at home when the cold forced him to seek shelter and when the starved condition of his ponies limited his activity. General Sheridan at once seized upon this solution and carried it out with his usual energy. A winter campaign was decided upon, in which the

troops were to undergo all the hardships which the Indians themselves were trying to avoid by keeping quiet.

General George A. Custer, with the Seventh Cavalry, General Eugene A. Carr, with the Fifth Cavalry, and Colonel Andrew W. Evans, with the Third Cavalry, were designated to round up the hostiles in Kansas, Colorado, New Mexico, and Indian Territory.

Evans struck the Comanches on Christmas day, 1868, at Ellen Creek, Indian Territory, killed 25 and destroyed their camp. Carr, after capturing and destroying a camp at Beaver Creek, Kans., finally ran down Tall Bull's band of Cheyennes at Summit Springs, Colo., in the spring of 1869. The troops marched 150 miles in three days, outmarched the Indians, passed their flank, and struck them in rear. The chief and 80 of his warriors were killed.

At about Thanksgiving day in 1868, Custer surprised a Cheyenne village on the Washita River in Indian Territory, killed Black Kettle, the chief, and more than 100 warriors, destroyed the camp with its contents and shot more than 800 ponies. The loss of the troops was 35 officers and men, killed and wounded. Among the latter was Lieut. T. J. March, Seventh Cavalry.

After the action it was found that much bigger game had been flushed than had been expected. For 12 miles along the river were the winter camps of Kiowas, Comanches, Arapahoes, and Cheyennes, comprising about all the hostiles of the Indian Territories. Custer thought it advisable to go no further at that time, so he returned to Camp Supply. Leaving again in a short time he continued his operations throughout the winter, with the result of bringing in the balance of the hostiles. Several times he had the enemy at his mercy and would have been fully justified in attacking, but he choose the opposite course at a much greater personal risk to himself. He was largely influenced in his resort to peaceful methods by a knowledge that there were some white women held as prisoners in the Indian camps who would have been killed at the first sign of an attack.

The result of all these operations planned by General Sheridan was that some 12,000 Indians left the war path and

went to live on their reservations. Hostilities were practically brought to an end in three or four great States.

The report of General Sheridan for 1868 sums up the Indian question in characteristic style. It says:

> The present system of dealing with the Indians, I think, is an error. There are too many fingers in the pie, too many ends to be subserved, and too much money to be made; and it is in the interest of the nation and of humanity to put an end to this inhuman farce. The Peace Commission, the Indian Department, the military, and the Indian make a balky team. The public treasury is depleted and innocent people plundered in this quadrangular arrangement, in which the treasury and the unarmed settlers are the greatest sufferers. * * *
>
> The Army has nothing to gain by war with the Indians; on the contrary, it has everything to lose. In such a war it suffers all the hardship and privation, exposed as it is to the charge of assassination if the Indians are killed, to the charge of inefficiency if they are not; to misrepresentation by the agents who fatten on the plunder of Indians, and misunderstood by worthy people at a distance who are deceived by these agents.

In January, 1870, Major E. C. Baker, with four troops of the Second Cavalry, left Fort Ellis, Mont., to punish some bands of Blackfeet who had been marked down for punishment. He struck their camp on the Las Marias River and killed 173 of them and captured others, with all their property. Much obloquy was heaped upon the troops because a number of women and children were killed at the time. The facts were much obscured by the event being made to serve the purposes of a political attack on General Sheridan. General Winfield S. Hancock commanded the department and sustained the troops. The campaign was made in weather when the thermometer registered 40° below zero. No further offenses have been charged to these Indians.

To the next six years and 150 engagements on the plains we can only give a brief notice. This will take us up to the beginning of the year 1876. It was a season of peace compared with former and later years, and much work was done by the commands of Neill, Baker, Mackenzie, Custer, Davidson, and Stanley. In truth, the southern Indians were under the influence of their defeats and sufferings, while in the north Red Cloud had now become our friend, the Oregon trail had

been abandoned by our garrisons, and the Black Hills had not yet strongly excited our roving population to dig for gold.

One of the brilliant actions of this period was fought by Lieut. Austin Henely, Sixth Cavalry, at Sappa Creek, Kansas. Henely deserves more than a word in the annals of the Military Academy. He showed the best qualities of a soldier on a number of occasions, and died too soon to reap the harvest sown by his high ambition. He was drowned in a mountain torrent in Arizona, along with his friend and classmate, "Tony" Rucker, who was trying to save him. The gallant example and tragic fate of these two noble youths will long be a tradition in the Army, as well as among the frontier population of Arizona.

General Ranald S. Mackenzie, Fourth Cavalry, was wounded on the Freshwater Fork of the Brazos in Texas in the year 1871.

Lieut. Charles Braden, Seventh Cavalry, during the Yellowstone expedition of 1873, received a severe wound, which caused his retirement from active service.

THE PLAINS, 1876–1891.

On February 7, 1876, authority was received to proceed against the non-agency Indians of the plains, principally represented by the small bands of Sitting Bull and Crazy Horse. Neither of them was supposed to be of great importance. Sitting Bull was accredited with 30 or 40 lodges, Crazy Horse with 100 to 200 warriors; but to accept these figures it was unfortunately necessary to take the statements of the civilian agents of the Interior Department, who had full charge of the Indians and who persistently declared that they kept track of their wards. The Army was expecting to have a rather easy time of it. As a matter of fact over 28,000 Indians were absent from their agencies.

General George Crook, having fought every tribe of Indians on the Pacific coast, was in command of the Department of the Platte, the northern line of which ran through the middle of the buffalo country claimed by the Sioux, Cheyenne and Arapaho. On March 1 the general headed an expedition from Fort Fetterman, Wyo., into the Powder River

country. On March 17 a detachment of this command under Colonel J. J. Reynolds, Third Cavalry, captured and destroyed Crazy Horse's village of 105 lodges near the mouth of the Little Powder River in Montana. The command was marching and fighting for thirty-six hours, and most of the officers and men were frost-bitten. The limit of endurance was nearly reached, and the pony herd got away, which furnished many people with an excuse for forgetting whatever good service the command performed.

This Crazy Horse was a pretty big Indian. A few years before, while looking for a chance to show what sort of stuff he was made of, he walked into Fort Laramie and killed a soldier on the parade ground. That gave him a good start, and now great numbers of the young bloods from the agencies gathered about him and Sitting Bull. The frequent military expeditions into the Black Hills and the rush of miners into the same region gave them fair warning that they would soon have to fight for their hunting grounds. The loss of his village was a heavy blow to Crazy Horse, but he came up smiling again in a few months.

The Army made rather unusual preparations, chiefly due to the fact that the troubled district was within the domain of two military departments, neither of which desired to be outpointed by the other in the approaching campaign. No one dreamed that owing to the anomalous policy of our Government we were ignorantly going to fight two-thirds of our bacon-picking Sioux, Cheyenne, and Arapaho, who were confidently reported as drawing their regular rations at the various agencies provided for that purpose.

In the spring three columns took to the field, one of which was commanded by General George Crook, another by General John Gibbon; General George A. Custer and the Seventh Cavalry was with the third column.

On June 17 Crook, with 1,000 men, had a fight with Crazy Horse on Rosebud Creek and got a little the worst of it. Much to his chagrin the general found himself confronted by a superior force, who were not backward in offering him battle. Their village was only 8 or 10 miles away, but he

could not take it, and found it best to withdraw and wait for more men.

Captain Guy V. Henry, Third Cavalry, was shot through the head, receiving a very bad wound, which troubled him as long as he lived.

A week later Custer, at the head of five troops of the Seventh Cavalry, consumed with an overmastering fear lest a single Indian should escape, rode gaily at the combined force of Crazy Horse and Sitting Bull, encamped on the Little Big Horn. It was a great deed of arms, and will not be forgotten as long as our race continues to be inspired by acts of honor and duty.

With Custer were killed Lieut. James E. Porter, Seventh Cavalry; Lieut. H. M. Harrington, Seventh Cavalry; Lieut. John G. Sturgis, Seventh Cavalry.

Of the manner of their death not a thing is known beyond the story of the field itself. The skirmish lines were well kept and each officer and man seems to have stood well up to his work. Meanwhile, a couple of miles away, the balance of the regiment, under Major Marcus A. Reno, was having a hard struggle to escape the same fate. In the action of this command, Lieut. Benjamin H. Hodgson was killed and Lieut. Charles A. Varnum was wounded. A few days later Lieut. Frederick W. Sibley, Second Cavalry, with 25 men on a reconnoissance from Crook's camp, had a narrow escape from being massacred with his entire force.

These events caused strenuous measures to be taken. General Sheridan, by stripping every post from Manitoba to Texas, put 3,500 men in the field. The Army was placed in charge of the Indian agencies and soon made the discovery that 28,000 Indians were absent without leave. Troops of cavalry were filled up to 100 men by enlisting raw recruits, who were rushed to the front. They were dubbed "Custer Avengers" and perhaps it was fortunate that they were not required at once on the skirmish line.

The Indians found it impossible to keep together in large bodies and broke up into smaller bands. As Crazy Horse went south toward the Black Hills—the Pah sap pa of the savages, the mysterious land of gold which caused all the

trouble—Crook struck after him, although it was necessary to go 200 miles on two and a half days' bacon and hard-tack. In the march some troops lost nearly all their horses, many of which had to be butchered for food, and the command was in about as bad shape as possible without going to pieces, when an advanced party of 150 men of the Third Cavalry under Colonel Anson Mills ran upon Roman Nose's village of 40 lodges at Slim Buttes on September 14. A fortunate capture of ponies and putrid dried buffalo eked out the food for a few days. Crazy Horse was near at hand and came up in royal style, but, after some lively skirmishing and several attempts to run off the herds, he drew off. It was on this day that Lieut. Frederick Schwatka, Third Cavalry, with 25 men, coming upon the village in the dim light of the early day, not knowing but that, like Custer, he was tackling the entire Sioux Nation, and rather thinking that he was, yet went ahead and made his charge.

On November 16 Crook again left Fetterman on his third campaign of the year with a fresh command. On the 24th a detachment under General Ranald S. Mackenzie, Fourth Cavalry, struck Dull Knife's village of Cheyennes on the North Fork of the Powder River in Wyoming. A large village was destroyed and a herd of ponies was captured. The suffering of the Indians was terrible; large numbers of them froze to death in the mountains. Lieut. John A. McKinney, Fourth Cavalry, was killed. He was a brilliant young officer, handsome, popular, full of ambition, with everything in his favor except luck, if it be not luck to stop a bullet at the head of a charging troop and to leave a name as one who learned his lesson well.

Through these campaigns we can not fail to be struck by the magnanimity of General Crook, on two occasions, in giving first to Reynolds, and then to Mackenzie, the chance to get all the credit of the campaign. He did the same in Arizona.

The Indian agencies now being in the hands of the Army, the hostiles were deprived of a base of supplies, the buffalo did not afford a sure or sufficient commissary, and ammunition could not be manufactured, so that the armies of the

great chiefs had to break up into small bands, which scattered for subsistence. Most of them surrendered at odd times during the winter and spring. Sitting Bull took his followers across the border. Crazy Horse surrendered and was quiet for a time, but peace did not suit his turbulent spirit and he met his death at the end of an infantry bayonet while resisting arrest at Fort Robinson.

A band of Miniconjou Sioux under Lame Deer, which had kept out of the general surrender of the hostile bands and were located near the mouth of Muddy Creek, Montana, were attacked and defeated on May 7, 1877. The village was taken with a rush led by Lieuts. Edward W. Casey, Twenty-second Infantry, and Lovell H. Jerome, Second Cavalry. The Indians were driven out of their village, but retired to the bluffs and made a stand there, during which Lieut. Alfred M. Fuller, Second Cavalry, was wounded. Lame Deer and Iron Star, the principal chiefs, were killed.

A portion of the northern Cheyennes which had surrendered was sent to the agency of the southern Cheyennes in the Indian Territory. This was against the earnest protest of General Crook. The Indians, as usual, objected to leaving their old homes and said they would rather die than stay there. It was the same old story, and Dull Knife's band made good their threat. In 1878 they broke away, crossed the State of Kansas, were captured in Kansas and confined in a barrack building at Fort Robinson. Finding that they were again to be sent to the Indian Territory, they knifed their guards on one cold winter's night and took to the country in snow a foot deep. This time the balance of them were killed after a vigorous fight. As they were passing through Kansas they were attacked by Lieut. Colonel William H. Lewis, Nineteenth Infantry, on Punished Womans Fork, where Colonel Lewis was mortally wounded.

The Utes of Colorado had been peaceful since a severe defeat at Puncha Pass in 1855, but in 1879 they broke out again, massacred the agency employees and the agent, and made prisoners of the women of their families. Major T. Tipton Thornburgh, Fourth Infantry, proceeding with three

troops of the Fifth and Third Cavalry regiments to the agency, was attacked at Milk Creek and killed. About one-third of the command was killed and wounded, and was forced to intrench and remain on the defensive, with the loss of all the horses, until it was relieved by General Merritt.

Captain J. Scott Payne, Fifth Cavalry, was twice wounded. Lieut. James V. S. Paddock, Fifth Cavalry, was severely wounded. A few days later Lieut. William B. Weir, Ordnance Department, was killed while on a reconnoissance toward Rifle Creek, 20 miles south of the agency. It should not be forgotten that at the time Weir was killed the troops had been ordered to cease operations and to give the Indian Department a chance.

In July, 1881, Major D. H. Brotherton, Seventh Infantry, received the surrender of the last of the hostiles under Sitting Bull. They could not survive the extermination of the buffalo. Sitting Bull lived quietly for about nine years, and was killed by Indian police during the troubles immediately preceding the uprising of 1890.

With the surrender of these Indians there ended a period of fifteen years of conflict on the plains, which was almost entirely in the military command of General Philip H. Sheridan. More than 400 skirmishes, combats, and battles had been fought; more than 1,000 officers and men had been killed and wounded. The country filled with aggressive settlers, and the Indians, even the proudest, bravest, and cleanest of them, became cowed, degraded, and starved. This condition afforded an opportunity for the "Messiah craze" to take a start, ably abetted, it is to be feared, by educated Indians. . The belief of the Indians that they were about to be delivered from the white people by supernatural means was general in 1890. Only a few, however, were bold enough to openly defy the authorities. Among the Sioux most of the unruly spirits gathered into the band of Big Foot, so it was thought advisable to disarm them, and an order to that effect was issued. They escaped from their first captor and after a while fell into the hands of General James W. Forsyth and the Seventh Cavalry. In the attempt to disarm the Indians a desperate conflict occurred, in which 146 Indians were killed and 33

wounded, as well as 60 officers and men. General Forsyth and his command were at once subjected to the same class of criticism so freely bestowed after the Little Big Horn disaster, but the best authority was satisfied with the troops and their handling.

Captain George D. Wallace, Seventh Cavalry, was killed.

Lieut. Ernest A. Garlington, Seventh Cavalry, was severely wounded.

Lieut. John C. Gresham, Seventh Cavalry, was wounded.

Lieut. H. L. Hawthorne, Second Artillery, was wounded.

A few days later a movement to the Catholic mission, a dozen miles away, brought on another conflict, in which Lieut. James D. Mann, Seventh Cavalry, was mortally wounded.

Lieut. Edward W. Casey, Twenty-second Infantry, while riding toward the hostile camp of Brulé Sioux, probably with the intention of emulating the previous exploit of Gatewood in Geronimo's camp, was killed by a murderous Brulé Indian. The Indian was acquitted on the ground that it was an act of war, and the fellow was congratulated by an enthusiastic audience, so we are told. We should like to know what would happen to an American soldier tried for shooting an enemy in the back. In the death of Casey the Indians lost one of their best friends, who had done much for them and who, by his ability and intelligence, was capable of much more.

SOME INCIDENTS OF SERVICE.

With this account of some of the men and the acts performed during the Indian wars of an hundred years I have used up the space allotted to me, and yet I feel as if my task were hardly begun.

A thousand scouts came back, but never flushed their game. A thousand others tracked their quarry to the death, but never raised the performance above the dreary level of duty well performed. I am throwing into my waste-paper basket many a hard-riding record of this kind. Some of them are good enough models of frontier service to furnish instruction if our cavalry ever gets stale and rusty in a long peace.

For instance, turn backward with me across sufficient time and space to imagine ourselves at a small group of mud

houses and shanties, called a "fort," on the frontier of Texas about fifty years ago, and let us picture this scene which was one of the casual incidents of army life during much of its history. A young second lieutenant, not long out of West Point, comes riding into the post, followed by a few dusty troopers on jaded horses. The officer's name is Horace Randal, of the First Dragoons. He makes a brief report to the commanding officer, and this is what he says:

> I marched out of the post on thirty minutes' notice with 20 men, following a band of Gila Apaches who had stolen some mules. I chased them 300 miles over mountains and plains, through snow and alkali dust, riding 80 miles the last day. Our rations gave out, and we ate the flesh of the sore-backed horses which gave out on the march. For three days and nights we were without water. I caught the Indians, fought them, killed several, and recaptured the stolen stock.

Change Randal's name for another, put in another date, and go 1,000 miles or more to another point on the wide border and you will see the same thing going on, except that in summer the report would be varied by the tale of deserts crossed without grass or water either. If the enemy were fresh at the end you would hear of a hard run over many miles of rough country, probably of wounded carried for many days without the attention of a surgeon.

Officers and men became expert in marching as a few examples will show:

Company A of the Engineer Battalion marched 1,100 miles en route from Fort Bridger, Utah, to West Point, N. Y., in 1858. The company made an average of 20 miles per day for two months.

A company of the Twenty-second Infantry marched 63 miles in twenty-nine hours and fifteen minutes during the Sioux war of 1890–91.

Battery B, Second Artillery, marched 52 miles in twenty-four hours at the time of Ewell's attack on the Mescalero on the Penasco River in 1855.

One of the best instances of individual horsemanship is furnished by the performance of Lieut. William P. (Doc.) Sanders, Second Dragoons, in 1861, just before the civil war. He left Fort Crittenden, Utah, with one man, in pursuit of

deserters, and did not stop until he reached Los Angeles, Cal. He caught the deserters, handed them over to the nearest military post and returned, riding the same horse all the way, 1,600 miles in fifty-nine days, over a rough and dangerous country.

In 1880 Captain A. E. (Jug.) Wood, Fourth Cavalry, rode with 8 men in pursuit of deserters from Fort Reno, Ind. T., to Arkansas City, Kansas, 140 miles in thirty-one hours. One horse was in bad condition at the end of the trip, made so by bad riding; the balance of the horses as well as the men were all right as soon as they got a little sleep and rest, and returned by ordinary marches at once to their station.

Lieut. J. E. B. (Jeb.) Stuart, First Cavalry, on July 11, 1860, with 20 men, rode 26 miles in two hours and a half in pursuit of the band of Kiowas that wounded Lieutenant Bayard. Bear in mind that Stuart had to take the country as he found it and that he had an enemy in his front.

In February, 1860, Brevet Lieut. Colonel Andrew Porter of the Mounted Rifles, left Fort Craig, N. Mex., in pursuit of a band of Navaho. On the second day he marched 90 miles with a detachment of 25 men in eighteen hours, the last 18 miles at a hard run in which he killed and wounded 16 Indians and captured their stock. The only thing that was the matter with Andrew Porter was his failure to get through West Point after two trials.

In July, 1867, General George A. Custer, with 100 men of the Seventh Cavalry made the distance from Fort Wallace to Fort Hays, Kans., 150 miles, in fifty-five hours, including halts.

In the same season, with a larger command, he made 60 miles in fifteen hours.

In the following year he marched a small detachment 80 miles in seventeen hours, every horse completing the march apparently in as fresh condition as when the march began.

In reaching his last battle ground on the Little Big Horn he marched the entire regiment 78 miles over very rough country in a little more than thirty hours.

In 1873 General R. S. Mackenzie took a squadron of the Fourth Cavalry into old Mexico after Lipan and Kickapoo Indians, beat them in a sharp fight, and returned across the

border, making 145 miles in twenty-eight hours. In 1874 he again took his command into Mexico, making there and back 85 miles in fifteen hours.

General Wesley Merritt in 1879, with four troops of the Fifth Cavalry, accompanied by a battalion of the Fourth Infantry in wagons nearly all the way, rode 170 miles to the relief of Thornburgh's command in sixty-six and one-half hours. The command arrived in perfect condition.

Plagues and pestilences sought out the most distant stations as well as those that were near. Some idea of the terrors of this kind may be gathered from the following instances:

So great was the mortality from cholera in 1832 that a force of 1,500 men in the Northwest were not able to participate in the Black Hawk war at that time. In 1848 cholera destroyed one-third of the Eighth Infantry in Texas. The colonel of the regiment was one of the victims.

The Fourth Infantry, crossing the Isthmus of Panama after the Mexican war on the way to California, had a similar attack of cholera.

At Fort Brown, Tex., in 1858, Colonel Francis Taylor and 39 out of 78 men died of yellow fever.

At Jackson Barracks, in 1867, there were 374 cases of yellow fever and 111 deaths out of a mean strength of 380 men.

Scurvy and blizzards have been known which left their mark on every man in the command. The skilled campaigner had to pitch his camp with an eye to waterspouts, bearing in mind frequent disaster from this source.

In November, 1871, two troops of the Second Cavalry were caught in a blizzard, 43° below zero, and 53 men were frostbitten and had their extremities frozen.

In the same year two companies of the Seventh Infantry, from Fort Shaw, Mont., encountered extreme cold weather. Nearly one-half had hands and feet frozen; 10 had amputations performed.

A remarkable trip was made by Captain R. B. Marcy, Fifth Infantry, in the winter of 1857–58. In the Utah expedition of that time one-half of the artillery horses, two-thirds of the dragoon horses, and a large proportion of the other animals perished. Marcy was sent to replace them in New Mexico.

He started with 40 men in the latter part of November and crossed the Rocky Mountains in the dead of winter at an elevation of 10,000 feet. At times he had to put his men on their hands and knees to break a trail through the snow. He got out of rations and lived for many days on the flesh of the animals which became played out. One man died and many were frozen; 47 out of 65 head of stock were lost. In five months he returned, bringing 1,000 head of stock, having traveled 1,350 miles in 103 marching days.

CONCLUSION.

Our Indian wars have nearly all been fought. The officers and men who fought in them had service in peace as hard as that in war. They took lessons in the school of danger and sharpened their wits by contact with emergencies which call forth the highest qualities of the soldier. These qualities must continue to be available if our country is to be a success.

In Indian wars 51 graduates of the Military Academy have been killed and 68 have been wounded. If we take credit for John W. S. McNeill, Second Dragoons; John J. Crittenden, Twenty-second Infantry; Hayden Delany, Ninth Infantry, and others who got their early training at West Point but did not graduate, the list would be longer. In numbers it does not approach the loss in a single great battle, but in every other way it should count for many Gettysburgs.

To the century that is beginning our Alma Mater points with pride to the history of the century that is past, only asking that in another hundred years the "dust that builds on dust" will have as good a tale to tell.

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SERVICES OF GRADUATES IN THE WAR OF 1812 AND IN THE MEXICAN WAR.

By Major WILLIAM A. SHUNK,
Eighth U. S. Cavalry, U. S. Military Academy, 1879.

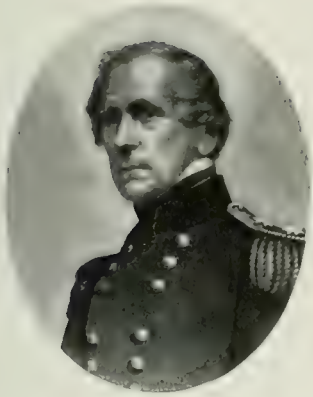
I. IN THE WAR OF 1812.

NON-COMMISSIONED OFFICER LIGHT ARTILLERY 1879

THE U. S. Military Academy began its existence in 1802, and when the war against Great Britain was declared in 1812 there were 65 graduates in service. As the country was in a most wretched state of unpreparedness for the conflict, it became necessary to assign many of these young men to the construction of fortifications for the protection of our most important seaports; and it is probably well within the truth to say that in this one line of work they saved the United States far more in money alone (without any reference to loss of prestige) than the Academy has cost during the first century of its existence.

This patient labor and that of others, who during the war were constantly on the alert, prepared to defend works that never were attacked, naturally escaped general notice and attention, which were then and have since remained centered on those who, by good fortune, participate in the stirring scenes of actual strife. At certain periods of our national history the American idea seems to have been to make war first and prepare for it afterwards. This was illustrated in 1812. The experience then acquired, added to that accumulated during the Revolution, ought to have been sufficient to last us to the end of time, or at least to have inspired us to take a wide margin of precaution against any repetitions. The Revolutionary experience was unavoidable, but that of 1812 can not be so charitably dismissed. With Washington

TAYLOR.



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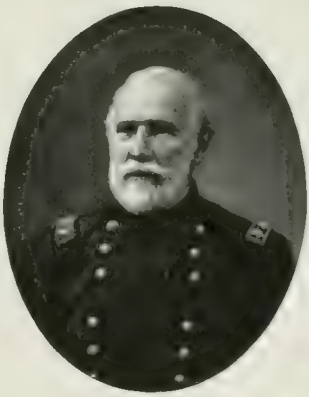

HARNEY.

WORTH.

GENERALS OF THE MEXICAN WAR.

or Greene in command, risks might be fairly taken which under some of their successors of 1812 would have proved suicidal. Excepting only the rawest militia, it is true, as a general statement, that the rank and file and most of the regimental officers were much nearer their proper military ideals than were most of those who at first held high commands. Of those who directed the general strategy it may be sufficient to say that, with the exploits of Napoleon ringing in their ears for fifteen years, they yet persisted, year after year and campaign after campaign, in trying to conquer the British in Canada by invading on three separate and distinct lines, embracing a front of nearly a thousand miles, and without rapid communication or any concert between the three commanding generals.

The rank and file, as a rule, were hardy men, fine shots, experienced hunters, and more or less accustomed to hardships similar to those of military service—in fact, most excellent material, needing only discipline and a moderate amount of training to become ideal soldiers, such as the regulars in many instances became as the war progressed. The militia, however, seldom remained on duty long enough to make very great improvement.

That young officers, thoroughly trained at a good military school, would be invaluable in armies such as ours were in the war of 1812—always containing a large proportion of comparatively uninstructed men, always deficient in some of the essentials of military science—should require no argument beyond the mere statement of the proposition. It is a matter for deep regret that all of them were so young in years, service, and rank that they were not consulted upon questions of strategy. Had this been done, it is only fair to believe that many of those errors which are pointed out and condemned by all writers on that subject might have been avoided—which certainly would have spared us many defeats and humiliations.

The limits of this paper do not admit of any extended descriptions of campaigns, nor is that considered to be necessary. However, clearness will occasionally require a few remarks upon the operations.

As the easiest means of setting forth the services of our graduates in the war of 1812, it is proposed to give a brief sketch of the parts taken therein by a few of those whose work was most conspicuous, beginning with General Joseph G. Swift, the first graduate of the Military Academy.

Promoted to second lieutenant in the Corps of Engineers October 12, 1802, he was engaged almost exclusively in the construction of seacoast fortifications until 1812, when, at the age of 30 years, he became colonel and Chief of Engineers, being at the same time aid de camp to Major-General Pinckney (commanding the southern department) as well as ex-officio Superintendent of the Military Academy. Having completed the southern defenses, he was, in April, 1813, placed in command of a brigade of infantry which constituted the garrison of Staten Island. His chief duty, however, was the repair of the defenses of New York and their extension and enlargement.

This duty completed, he asked for orders for the field, and, in August, was ordered to Sacketts Harbor as chief engineer of the northern army, under command of General Wilkinson, to whom Colonel Swift reported August 31, and at whose headquarters everything was in a most chaotic condition:

> No plan of campaign studied or definitely fixed, the Army split into factions with no one to harmonize discord * * *

Nothing having been previously ascertained of the enemy's positions, Colonel Swift made a thorough personal reconnaissance of the upper St. Lawrence, and on the 17th of October General Wilkinson's army embarked for the attack of Montreal. On November 5 this army was at French Creek, having accomplished only a few miles. All the advantages to be expected from rapidity of movement were lost, and the enemy was allowed abundant time for making all his arrangements to oppose and harass the march. The annoyance became so serious that on the 11th of November General Wilkinson detached part of his army to beat off the force that hung upon his flank and rear. This resulted in the indecisive battle of Chryslers Field, in which, according to the General's report, "Colonel Swift took the boldest and

most active part of any individual engaged except Adjutant-General Walbach."

The following day a letter was received from General Hampton refusing to form a junction with Wilkinson. This disobedience of orders made success impossible and terminated the campaign.

The failure of this campaign is in some degree traceable to mistakes, but in far greater measure to the conduct of certain persons of high rank, which conduct deserves and has received the severest condemnation; but as nothing of all this was ever laid to any fault of Colonel Swift it is only necessary to add that a few days after the battle he was sent with dispatches to the seat of Government, where he was at once ordered upon other duty. His requests for further field duty, though strongly backed by General Brown, could not be granted because the "coast defenses required his attention." For his services on the St. Lawrence Colonel Swift was brevetted a brigadier-general.

Concerning the result of this campaign, Lossing says:

> Thus ended in disaster and disgrace an expedition which in its inception promised great and salutary results. It was composed of brave and patriotic men, and justice to those men requires the humiliating confession from the historian that their failure to achieve complete success is justly chargeable to the incompetency of the chief commanders, and the criminal indulgence on the part of those commanders of personal jealousies and animosities. * * *

General Swift's next service was rendered in enlarging and extending the defenses of New York and Brooklyn, whose inhabitants were much alarmed by information of the British barbarities along the coasts and in the capital city, and who were determined to make themselves more secure. General Swift was the central figure in this great work, which, by the labor of all able-bodied citizens, was pushed forward with great energy from early in June until late in November. So much was his work appreciated that the corporation of New York "voted him a benefactor to the city, placed his portrait in the City Hall, presented Mrs. Swift with a magnificent service of plate, and himself with a box of silver drawing instruments and a large pleasure barge."

General Swift was in charge of and acquitted himself to

admiration upon a variety of duties of great importance (some of them in no way connected with the engineering art) from this time until the year 1818, when he resigned his commission. He continued to labor in many fields with great success until July 21, 1865, when he died at the age of 82 years.

General Swift was among the most versatile men who have as yet graduated from the Military Academy. In whatsoever he undertook he displayed ability of a very high order, and was most successful in all his multifarious tasks but one—the accumulation of wealth.

The following is quoted from the order of General Cullum (then Superintendent of the Military Academy) directing, July 30, 1865, honors to be paid to Swift's memory:

> Born at the close of the American Revolution, and dying at the termination of the American rebellion, General Swift lived through the most momentous period of history, and was himself a prominent actor in the grand drama of our national existence. His military career began with that of the Military Academy, which he fostered in its feeble infancy, and he lived to see in its developed maturity the sons of his cherished Alma Mater directing the high destinies of his country on victorious fields in Canada, Florida, Mexico, and within the wide domain of our Southern border. He now calmly sleeps after a long and useful life of more than fourscore years.
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> * * * * * * *
>
> The personal excellence of General Swift can be only appreciated by those who knew and loved him, and they were all whom he met on his long journey of life. Amiable and sincere, spotless in integrity, stanch in friendship, liberal in charity, General Swift was a model gentlemen, a true patriot, and a Christian soldier, worthy of the imitation of all who like him would live honored and revered and die universally regretted.

Among the early graduates of the Military Academy who won laurels in the war of 1812, none stood higher in the good opinions of those with whom they served than Lieut. Colonel Eleazer D. Wood, who graduated in the class of 1806, and was promoted a second lieutenant in the U. S. Corps of Engineers. He was employed until 1813 mostly in the construction of fortifications for the defense of certain seaports, but very early in that year he reported to General Harrison as assistant to the Chief of Engineers (Captain Gratiot, U. S. Engineers). On account of Captain Gratiot's ill health,

BATTLE OF MAUMEE, 1814.

Captain Wood was virtually chief engineer of the army of the Northwest throughout the campaign of 1813. General Harrison was then meditating an attack upon the British and their savage allies at Malden, but after the disaster on the River Raisin, where General Winchester's unauthorized and otherwise remarkable operations ended in his being surprised, defeated, and captured, together with a thousand of our best troops, General Harrison was reduced to the defensive, the enemy having a decided superiority on land and complete control of the lakes and their navigable tributaries. The general fell back at first to the Portage River, a distance of 18 miles; but, being reinforced, returned in a few days, notwithstanding his inferior strength, and took post according to his original design at the Rapids of the Maumee, "the most eligible position to cover the frontier and threaten Detroit and the enemy's headquarters at Malden." On the 3d of February General Harrison and Captain Gratiot selected a position nearly opposite General Wayne's battle ground of 1794, on a bluff which was about 100 feet above the river and completely commanded it.

"It was shortly afterwards directed by the general that a camp for 2,000 men should be laid out and strongly fortified, and that this work might be in a state of progression, the lines of the camp were immediately designated, and a large portion of labor assigned among every corps or regiment in the Army. Each brigade or regiment commenced that particular portion of work which was assigned it with great vigor and spirit.

The camp was about 2,500 yards in circumference, which distance, with the exception of several small intervals left for blockhouses and batteries, was every foot to be picketed with timber 15 feet long, from 10 to 12 inches in diameter, and set 3 feet in the ground. Such were the instructions of the engineer. To complete this picketing, to put up eight blockhouses (the number required) of double timber, to elevate four large batteries, to build all the storehouses and magazines required for the supplies of the Army, together with the ordinary fatigues of the camp, was an undertaking of no small magnitude. Besides, an immense deal of labor was to be performed in excavating ditches, making abatis, and clearing away the wood about camp; and all this to be done, too, at a time when the weather was extremely severe and the ground frozen so hard that it was almost impossible to

open it with a spade and pickax. But in use of the ax, mattock, and spade consisted all the military knowledge of the Army.'"

On the 4th of March Captain Wood was ordered to Lower Sandusky to complete the works at that place. On the 6th, General Harrison being compelled to go to Chillicothe to hasten supplies and to get drafts of militia to replace those whose time was about to expire, gave particular

"instructions to General Leftwich (of the Virginia militia) relative to the importance of a vigorous prosecution of the lines of defense. * * *

On the 20th of March, when Captain Wood returned from Lower Sandusky, he had the pain and mortification to find several of the men actually employed in pulling the pickets out of the ground and conveying them off for fuel.

* * *

They said that "it was a common thing for each mess to take what they wanted and nothing was said about it."

Was not this most perplexing and vexatious, indeed, to an officer the least acquainted with our situation, and particularly to one intrusted with the important duty of planning and fortifying the camp, and on the success of which, in the event of a siege, his honor and reputation entirely depended? Captains Croghan, Bradford, and Langhorn, of the Seventeenth and Nineteenth Regulars, had remonstrated in the strongest terms against such an abominable and wanton destruction of works which had been erected with so much labor and trouble, and on which they foresaw depended, in a great measure, the future salvation of the Army, but all to no purpose. Captain Wood found great difficulty in stopping the militia from destroying his works, but much greater in getting them to repair the breaches and depredations already made and committed on the lines.'"

About March 28 information reached Fort Meigs that General Proctor had ordered the Canadian militia to assemble at Malden on April 7 "for the purpose, it was well understood, of aiding in an expedition to be carried into effect against Camp Meigs."

The investment of the fort was completed on April 27 by General Proctor with 600 Regulars, 800 militia, and 1,800 Indians, together with a train of artillery. General Harrison was present with 1,250 men, half of whom were militia. The works were almost completed, and 850 men of the garrison were reported fit for duty. The savages surrounded the fort

and the British began to erect batteries on the opposite side of the river. Captain Wood advised the erection of a traverse, 10 or 15 feet high, parallel to the river, and nearly the entire length of the fort, to intercept the enemy's fire. General Harrison approved, and the traverse, the construction of which was screened by the tents, was completed about the same time as the enemy's batteries. The tents were now moved to the opposite side of the traverse and pitched anew. New batteries were promptly begun by the enemy and Captain Wood intercepted their fire also by new traverses, which finally formed a "kind of intrenched citadel," against which the enemy maintained a furious cannonade for five days, all to very little purpose.

On May 5 reenforcements consisting of 1,200 Kentucky militia attempted to fight their way into the fort. Assisted by sorties from the fort they succeeded in this, but with very heavy losses, amounting to more than one-half their strength. The militia also captured the principal batteries and spiked some of the guns, but were unable to hold them. The enemy gave up the attack after this, and on the 9th departed for Malden. An easy victory had been expected, and their failure caused great mortification and much dissension among the allies.

This operation was the turning point of the war in the Northwest. Previous to the siege of Fort Meigs the enemy's success had been almost uninterrupted; afterwards their career of failure was entirely so.

The following is quoted from General Harrison's dispatch to the War Department:

> Captain Gratiot, of the Engineers, having been for a long time much indisposed, the task of fortifying the post devolved upon Captain Wood. It could not have been placed in better hands. Permit me to recommend him to the President, and to assure you that any mark of his approbation bestowed on Captain Wood would be highly gratifying to the whole of the troops who witnessed his arduous exertions.

This recommendation secured for Captain Wood the brevet of major "for distinguished services in the defense of Fort Meigs."

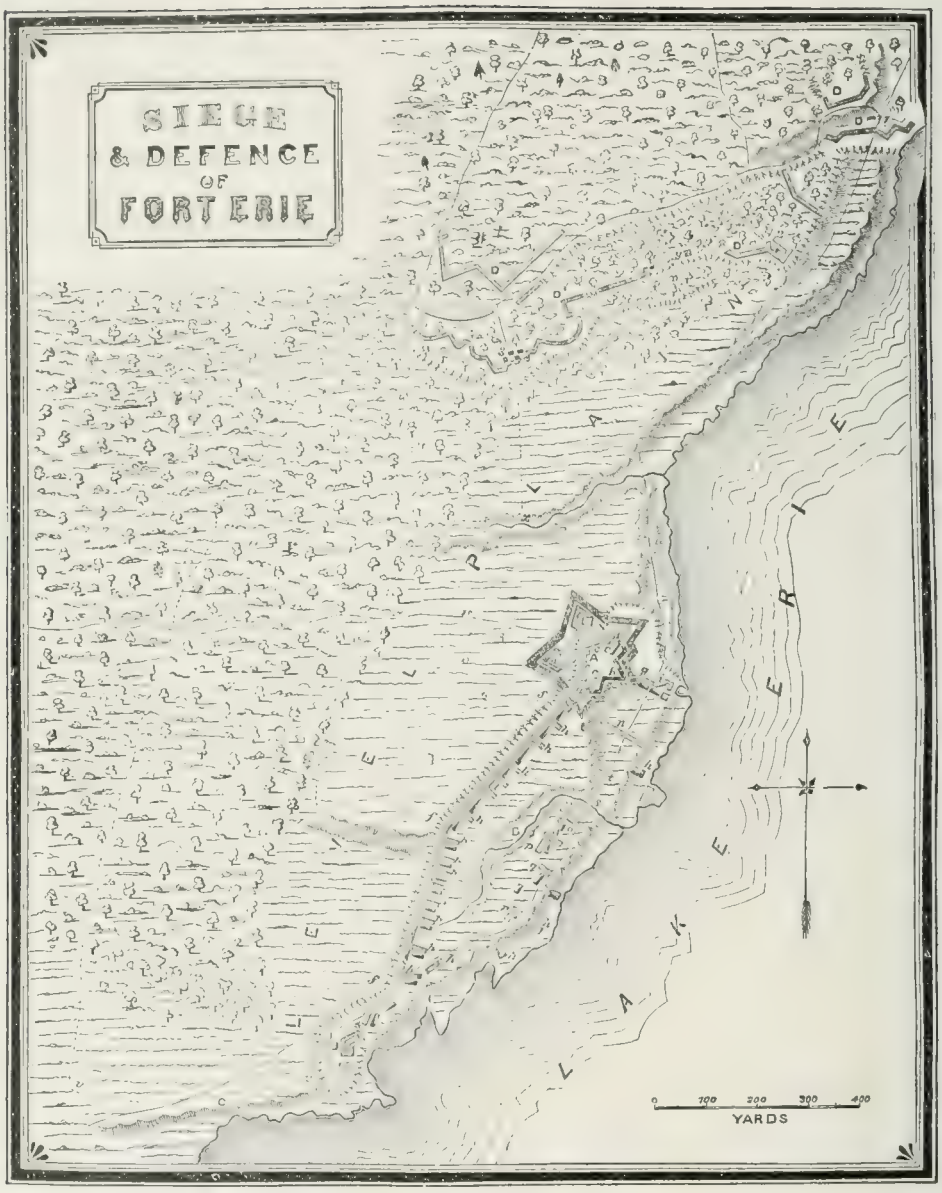
The following is quoted from Harrison's order of the day to his command:

> Where merit was so general, indeed, almost universal, it is difficult to discriminate. The general can not, however, omit to mention the names of those whose situation gave them an opportunity of being more particularly useful. From the long illness of Captain Gratiot, of the Corps of Engineers, the arduous and important duties of fortifying the camp devolved on Captain Wood, of that Corps. In assigning to him the first palm of merit as far as relates to the transactions within the works, the general is convinced his decision will be awarded by every individual in the camp who witnessed his indefatigable exertions, his consummate skill in providing for the safety of every point and in foiling any attempt of the enemy, and his undaunted bravery in the performance of his duty in the most exposed situations.

Proctor again approached Fort Meigs late in July, but withdrew in a few days. On the 2d of August he was repulsed by Major Crogan at Fort Stephenson, whereupon he returned to Malden.

For nearly a year a squadron of light vessels had been under construction near Erie, with the intention, perfectly understood by everybody, of disputing the control of the lakes. There is no doubt that the British might have attempted the destruction of those vessels and the shipyards, with excellent prospects of success, at any time during the spring and summer. As the very existence of those vessels was a standing menace of destruction to the enemy, and as no attempt upon them was made, it may be inferred that the Americans did not have a monopoly of bad generalship.

On September 10 Commodore Perry, in command of this flotilla, won his famous victory on Lake Erie, which placed Proctor upon the defensive and gave Harrison the initiative, which he utilized at once. He began the embarkation of his troops September 20, and on the 27th landed them near Malden. Proctor had already destroyed all the public and much private property at that place and was retreating toward the Moravian town on the River Thames, where he was overtaken and his army annihilated on the 5th of October, Major Wood being, as usual, highly complimented in the general's dispatches.


SIEGE
& DEFENCE
OF
FORT ERIE
LAKE ERIE
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YARDS

This was General Harrison's last battle. He had shown his capability for high command, had completed his task to admiration, and was the only American general who had as yet conducted a successful campaign during the war. He was given an indefinite leave of absence, for which he had never asked, and shortly resigned his commission.

Major Wood was next engaged in completing the fortifications of Sackett's Harbor. In June, 1814, he reported to General Brown, commanding the army on the Niagara frontier, as assistant to Colonel McRee, the chief engineer. In this capacity he took a prominent part in the operations that led to the surrender of Fort Erie July 3 and in the battle of Chippewa July 5, after which he made a close reconnaissance of the enemy's position beyond Chippewa Creek the same evening, securing important information. Major Wood took an active part in the further pursuit of the enemy and was present at a council of war July 14. He made a daring reconnaissance of the works at Fort George preparatory to its investment, and was an active participant in the battle of Lundy's Lane, July 25.

In his official report of this battle General Brown says: "The engineers, Major McRee and Wood, were greatly distinguished on this day, and their high military talents exerted with great effect; they were much under my eye and near my person, and to their assistance a great deal is to be fairly ascribed. I most earnestly recommend them as worthy of the highest trust and confidence." Both were brevetted lieutenants-colonel "for gallant conduct in the battle of Niagara."

Generals Brown and Scott were wounded at the battle of Lundy's Lane (Niagara), and the command devolved upon General Ripley, who was about to recross the Niagara and was only dissuaded by the very urgent representations of Colonels McRee and Wood.

It having been decided to strengthen Fort Erie and to enlarge it into an intrenched camp for General Brown's entire army, every officer and man present, and especially the engineers, were hard at work day and night (within the limits of endurance) for the fortnight beginning July 27. By this means, on August 7, the works were in a defensible condition.

Having had a week's rest after the battle of Lundy's Lane and strong reinforcements having arrived, the enemy approached the works August 2, and invested them next day. August 7 a heavy fire of artillery was opened by both parties, and continued to the evening of the 14th. The enemy having completed new batteries, their fire was specially severe on the 13th and 14th.

Colonel Wood, in addition to his other duties, was placed in command of the Twenty-first Infantry, the regiment with which Colonel Miller made his famous record at Lundy's Lane.

This regiment, about 300 strong, held the left of the line. General Gaines had taken command of the American forces, both parties had been reinforced, and both had made every preparation for the coming attack on the 14th. General Gaines and his engineers were confident that an assault would be made that night. They accordingly "inspected every part of the works, gave explicit orders to meet all emergencies, kept one-third of the garrison in turn under arms, and made every preparation to guard against the expected blow. Midnight came undisturbed and calm, but it was the lull before the tempest. Already three British assaulting columns were preparing for their deadly errand. One, 1,400 strong, under Lieutenant-Colonel Fisher was to assail our left.

* * * * * * *

"At half-past 2 on the morning of the 15th the storm first burst upon our left; but no sooner were our pickets driven in than a sheet of flame from Towson's artillery and Wood's infantry disclosed the enemy's advance to within 10 feet of our lines, and soon after, making an effort to turn the abatis by wading breast deep through the lake. After a desperate struggle the enemy was repulsed; but, rallying again and again, the attack was renewed, till five times failing to gain any advantage and being terribly cut up by our murderous fire, Fisher finally abandoned the enterprise."[a]

In his report General Ripley says: "Wood has the merit, with the Spartan band, in connection with Captain Towson's artillery, of defeating a vaunted foe of six times his force."

[a] Cullum's Campaigns of the War of 1812.

General Gaines, in his report, especially commended six officers, one of whom was Colonel Wood.

The siege continued and on the 28th General Gaines was severely wounded, whereupon General Brown, though still suffering from his wound, returned to the Army and resumed command September 2. Realizing that his army was in danger of destruction because of the greatly superior force of the enemy, and ascertaining that the supporting troops were encamped at some distance from the trenches, he formed a plan "to storm the batteries, destroy the cannon, and roughly handle the brigade on duty before the reserve could be brought into action."

This plan was supported by Colonels McRee and Wood but failed of approval by a council of war September 9. Nevertheless, General Brown determined to carry his plan into execution on the first favorable opportunity.

"Everything being favorable, the sky cloudy and the atmosphere thick with drizzling rain, our troops, on the morning of the 17th, were paraded for the daring attack. The left column, in three divisions headed respectively by Gibson, Wood, and Davis, the whole under General Porter, gained, by the circuitous route marked out (through the timbered swamp in front of the American left) the day before, the British right flank; while Miller's column, passing in small detachments through the ravine at right angles to the middle of our front, reached the edge of the woods, under cover of which it marched to the head of another ravine, passing down which it took up its position nearly opposite the enemy's center. * * *

"Before 3 o'clock of the afternoon of the 17th Porter assailed the right of the enemy's works, while Miller, charging from the ravine, pierced the enemy's intrenchments. In a few minutes they had taken possession of the blockhouses, captured the second and third batteries, disabled their guns, blown up a magazine, cleared the siege works of defenders, and, after a short struggle, the first battery was also carried."[a]

The American loss was more than 500; that of the enemy

[a] Cullum Campaigns of the War of 1812

more than 600, not including 385 prisoners.[a] Napier says this is "the only instance in history where a besieging army was entirely broken up and routed by a single sortie."

"Thus ended the brief and brilliant career of this noble soldier, who had few equals and was surpassed by none of his profession and peers. Young in age, he was a veteran in the art of war. His eight years of army life had 'uniformly been an exhibition of military skill, acute judgment, and heroic valor.'"

* * * * *

"It was Wood's peculiar good fortune to be prominent in every branch of his profession, whether as an engineer, making the daring reconnaissance, or directing defenses; as an artillerist, pursuing the flying foe to the Thames, or serving in the battery at Chippewa as a paladin cavalier in the final rout of Proctor's last fugitives; or as the accomplished infantry commander, leading the column and charging the besiegers at Fort Erie. While first in battle, he was also first in the estimation of those he so faithfully served. Harrison assigns to him the first palm of merit at Fort Meigs and highly praises his efficiency in the invasion of Canada; Brown reports his marked distinction at Niagara, where his "high military talents were exerted with great effect"—to whose "assistance a great deal is fairly to be ascribed;" Gaines says "in the command of a regiment of infantry he has often proved himself well qualified, but never so conspicuously as in the repulse of the British assault on Fort Erie;" Ripley, on the same occasion, acknowledges his indebtedness to "this officer's merits, so well known that approbation can scarcely add to his reputation;" Porter, under whom he led a column in the sortie from Fort Erie, reports to Brown, "you know how exalted an opinion I have always entertained of him;" and his commanding general, when this pillar of his power lay prostrate in death, pronounced this truthful eulogy to his worth: "Wood, brave, generous, and enterprising, died as he had lived, without a feeling but for the honor of his country and the glory of her arms. His name and example will live to guide the soldier

in the path of duty so long as true heroism is held in estimation."

"After the termination of the war, September 12, 1816, Major-General Jacob Brown, then general in chief, addressed the following letter to Brigadier-General Joseph G. Swift, Chief Engineer of the Army:

'I think it proper to express to you, as Chief of the Corps of Engineers, the high sense I entertain of the services of Colonel McRee, Lieutenant-Colonel Wood, Captain Douglass, and Lieutenant Story, who served with my division upon the Niagara in 1814. They were all greatly distinguished, but Colonel McRee and Lieutenant-Colonel Wood have particular claims upon me for the cheerfulness and ardor with which they entered upon the execution of every enterprise, having in view the honor of my command, and for the zeal and talent they uniformly displayed. Lieutenant-Colonel Wood fell! The occasion and the manner of his death secure to him the patriot soldier's best reward—pure and imperishable fame. To this I can add nothing; but, as a tribute of my respect for the hero and the man, I request you to cause a monument to be erected at my expense to his memory. Let it stand near the Military Academy at West Point and, though it can not elevate his name, it may stimulate the soldiers of his school to die like him without a feeling but for the honor of their country and the glory of her arms.'

In compliance with this request, so honorable to General Brown, the Chief Engineer had executed the white marble obelisk now gracing the little knoll north of the West Point Plain, looking up the Hudson upon the most beautiful river view in the world."

The space allotted to this paper does not permit even a slight notice of two other graduates who, in achievements and in the estimation in which they were held by their superiors, were not inferior to those already briefly sketched; nor of others whose achievements were much superior to those of some persons who in later times have been rewarded with the highest honors. Such a one was the brilliant Col. William McRee, who, according to Cullum, was the "bright particular star of the war of 1812;" whom President Monroe desired to appoint Chief of Engineers to succeed General Swift, but to which Colonel McRee would not agree as he did not desire promotion over his senior, although the latter had expressly waived any objection; whom President Adams seriously thought of appointing general in chief to succeed General Jacob Brown, though he finally appointed another; of whom

"Cullum's Campaigns of the War of 1812. This monument was first erected in the center of the general parade, then moved to the knoll, and is now near the entrance to the cemetery.—Editor.)

General Brown wrote, "McRee's industry and talents were the admiration of the whole Army," and of whom Gen. Winfield Scott wrote in 1843:

"In my opinion, and perhaps in that of all the Army, he (McRee) combined more genius and military science, with high courage, than any other officer who participated in the war of 1812. I know that this was at least a very general opinion. If the treaty of peace had not prevented he could, as I also know, have been made a general officer in 1815, and I am confident that he would in the field have illustrated the highest grade."

The above are a few of the high encomiums lavished upon Colonel McRee by every commander under whom he served.

Another, who, like Colonel McRee, deserves an extended notice, is the clear-brained, far-sighted, level-headed, laborious Major-General Joseph G. Totten, of the United States Engineers. According to Cullum: "He rose from the lowest to the highest grade in his branch of the Army; was five times complimented by advance rank for meritorious and distinguished services; became a brigadier by a special act of Congress in 1863; * * * was brevetted a major-general in the Army and the next day breathed his last * * * terminating his illustrious career at the advanced age of 75."

According to Lossing: "A school for military instruction, especially for the education of engineers, to be established at West Point, on the Hudson, was authorized by Congress in the spring of 1802. * * * The Corps of Engineers, authorized by the law just named, commenced their functions as constructors of new forts, or repairers of old ones, in the year 1808. * * * And that body of young men continued thus employed in a moderate way until the breaking out of the war in 1812, when they were sent to the field and all won military distinction.

"During the brief and brilliant campaigns of 1814 and 1815, when our education in war was anew purchased upon unsuccessful fields of blood, the full tide of triumph flowed on almost uninterruptedly, and the second war of independence closed in a blaze of victory. In these last achievements the youthful sons of the Military Academy nobly performed their

part. Of those serving in the field, one-sixth laid down their lives in the struggle, one-fourth were killed or wounded, and one-fifth of those who survived received one or two brevets each for their distinguished gallantry in that war."[a]

II. IN THE MEXICAN WAR.

"Thirty years of lucrative peace followed before our next contest, but the nation had somewhat profited by its past shortcomings. The Military Academy on the breaking out of the Mexican war had over 500 highly educated graduates in service, and nearly as many more in civil life, ready to resume their swords in the country's defense. Our Regular Army, mostly officered by them, had acquired experience in fighting savages on our extended frontier and had learned discipline in the swamps of Florida. Our brave volunteers, with high aptitude to form the best of soldiers, wisely sought the élèves of our national school and tendered to them the command of their regiments and battalions. The material of battle had been prepared by skillful hands, and educated minds directed the complicated machinery of war. The consequence of this fortuitous condition of things, despite political machinations, is too well known to require to be detailed here. Suffice it to say that, in comparing this with the preceding war, the fruits of military education are most apparent.

"In Canada, during two and a half years, with much larger forces than the enemy, our defeats outnumbered our victories; our gains in prisoners of war were less than our losses; our trophies were few, and our conquest scarce extended beyond the camps we occupied. In the Mexican war, our small but heroic army, in less than a year and a half, though opposed to the quadruple force of the enemy, won 30 victories, captured 40,000 soldiers, took 1,000 cannon and an immense amount of small arms and munitions of war, carried 10 fortified places and the capital of the enemy, and extended our conquests over the immense territory of Mexico and California. The gain of that war, to say nothing of national reputation, now annually pays more than thrice the total cost of the contest.

[a] Cullum's Register, vol. I, p. 1.

"The emulator of Cortez, the veteran Scott—one of the most experienced soldiers this nation has produced, and the consummate leader of our armies in Mexico—says, in a letter to the Commission appointed under the act of June 21, 1860, to examine into the organization system of discipline and course of instruction of the Military Academy: 'I give it as my fixed opinion that but for our graduated cadets the war between the United States and Mexico might, and probably would, have lasted some four or five years, with, in its first half, more defeats than victories falling to our share; whereas in less than two campaigns we conquered a great country and a peace without the loss of a single battle or skirmish.' The great results of the Mexican war gave the Military Academy an immense reputation."[a]

The Mexican war was caused by the annexation of Texas, and while a large proportion of our citizens professed to seriously doubt the justice of this step, their views were not urged as ordinarily they would have been because of the frequent outrages perpetrated by Mexicans upon American settlers, traders, and travelers, and because of the almost utter impossibility of obtaining redress in such cases, which led to the belief that Mexican authorities connived at such acts, or at least regarded them with entire indifference. Besides this, the barbarous manner in which Mexico prosecuted the war against the Texans caused intense exasperation throughout the United States.

When Texas, after having for ten years maintained her independence, which was duly acknowledged by the powers of the earth, petitioned for admission to the American Union, the protests of the Mexican Government were disregarded and the annexation was duly consummated in spite of oft-repeated threats of war.

During several years the United States Government had been repeatedly warned by that of Mexico that war would certainly result if our course in regard to Texas was continued. The annexation sentiment, however, grew stronger day by day and a crisis was clearly at hand, yet nothing was done

[a] Preface to Cullum's Register, p. 1.

that would indicate any expectation that a great contest was impending.

It may be truly said that we were better prepared for war in 1846 than in 1812; a careful study, however, shows that our advantage really consisted more in the unreadiness of our enemy for vigorous and sustained operations than in any merit of foresight or preparation on our own part. In fact "it was the same old story."

The Mexicans, relying upon their superiority in numbers, confidently expected success in the first operations, and it must be admitted that their expectations were not unreasonable. But there were other factors in the calculations which they could not know until too late, and which their vanity never would permit them to consider even after abundant experience.

At the time General Taylor was dispatched to the frontier of Texas the American Army was actually of less strength than it had been in any year since 1808.

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During the Presidency of Mr. Munroe and while Mr. Calhoun was Secretary of War (and, indeed, upon his recommendation), the plan had been adopted of having skeleton regiments, in which all the officers were retained, but the number of privates reduced one-half.

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Accordingly, the regiments of artillery and infantry had but 42 privates in each company, when the number should have been 84. The Military Academy had furnished a large number of valuable officers, many of whom were attached to the regiments by brevet. General Scott proposed to increase the Army simply by filling up these skeleton companies.[a]

By means of this increase, or even a much smaller one, "General Taylor's army would have been increased early in the spring (1846) and the Mexican general would, not improbably, have refrained from an attack to which he was tempted and invited by the weakness of the American force."[a] Of the situation just before actual hostilities, Mansfield says:

Notwithstanding all these plain indications of war, the movements of the Administration at home exhibited no symptom of anything but unbroken and continued peace. The recommendations of General Scott

[a] History of the Mexican War, by E. D. Mansfield, pp. 24–25.

for an increase of the Army were disregarded. The President and Congress moved placidly on as if neither arms nor money, strength or blood were required to secure an easy victory over a weak and effeminate foe. Some preparation had heretofore been deemed necessary by statesmen to meet the exigencies of war, even with very inferior powers. In this instance there was none. The official returns show that one-half the entire Army of the United States was in the corps of General Taylor, while various military posts and forts in the Northwest and on the Atlantic were entirely deprived of their garrisons to make up the forces on the Rio Grande. Even this army was almost totally without the wagons, animals, and drivers necessary for common field transportation.

In 1845, the line of the American Army consisted of only 14 regiments—2 of dragoons, 4 of artillery, and 8 of infantry. The total authorized enlisted strength was 7,883 men. The actual strength at the end of that year was 5,300. Just before Palo Alto, General Taylor's command, including all his garrisons and the sick, numbered, all told, 3,600 men. The Mexicans well knew that this was more than half the United States Army.

About three-fourths of the line officers were graduates of West Point. The officers of the Adjutant-General's, Quartermaster's, and Ordnance departments and also those of the Engineer Corps and of the Topographical Engineers were nearly all graduates, but there were none among the general officers at that time.

The Regular Army of that day gave very little attention to merely showy exercises, but for purposes of campaign and battle was unexcelled, if not unequaled.

The cavalry was well mounted, disciplined, and trained. The artillery was thoroughly instructed—some as light batteries, but most of it as infantry. The infantry also, like the other arms, was thoroughly trained in the drill and battle tactics of that period. The most casual reader can not fail to be impressed with the thorough knowledge of their arm and its possibilities and correct use on the battlefield exhibited by even the junior officers in the very first battle of the war. Such skill and readiness to seize the passing advantages offered by the phases of the fight are doubtless of inestimable value on the battlefield, but they are intuitive with very few if any. Hence the advantage of a good military education,

whether obtained at a military academy or in the school of practical experience. Hence the high estimation in which these men were held by both Generals Scott and Taylor, both of whom were honor graduates of the school of experience as well as men of great natural ability and of the highest character.

For all purposes of active service our Regulars were equal to any in existence, with the exception that they were not accustomed to maneuvering or working in masses, very few of them ever having seen more than a few companies assembled. But the theory of larger operations had been carefully studied by a great majority of the officers, and the troops soon became accustomed to working together in such masses as were necessary. Almost invariably the conduct of all our troops, both Regulars and Volunteers, was above all praise. The skill, and gallantry and dogged determination with which they overcame the tremendous odds of every kind against them—vast numerical superiority, powerful works armed with heavy guns, and the terrors of unfamiliar deadly climates—surpassed all reasonable expectation and are without a parallel in modern times.

After hostilities began, our Army was augmented by volunteers, enlisted at first "for one year," and later, when the folly of this plan was demonstrated, "for the war." Fortunately there was available a great abundance of most excellent material, entirely similar to their predecessors of 1812. Even with the short time possible for organization and training, these volunteers repeatedly showed themselves superior in battle to the enemy's best troops. A number of graduates were given volunteer commissions and their work in organization, discipline, and drill was of great value. That they labored faithfully and effectively is the universal testimony, and while many of the survivors received brevets for gallantry in action, their proportion of killed and wounded is more eloquent of their services on the battlefield than even the encomiums of their fellow-soldiers.

And in, perhaps, the most important of all respects, we were highly favored at this time in having generals of great skill, judgment, courage (both moral and physical), and

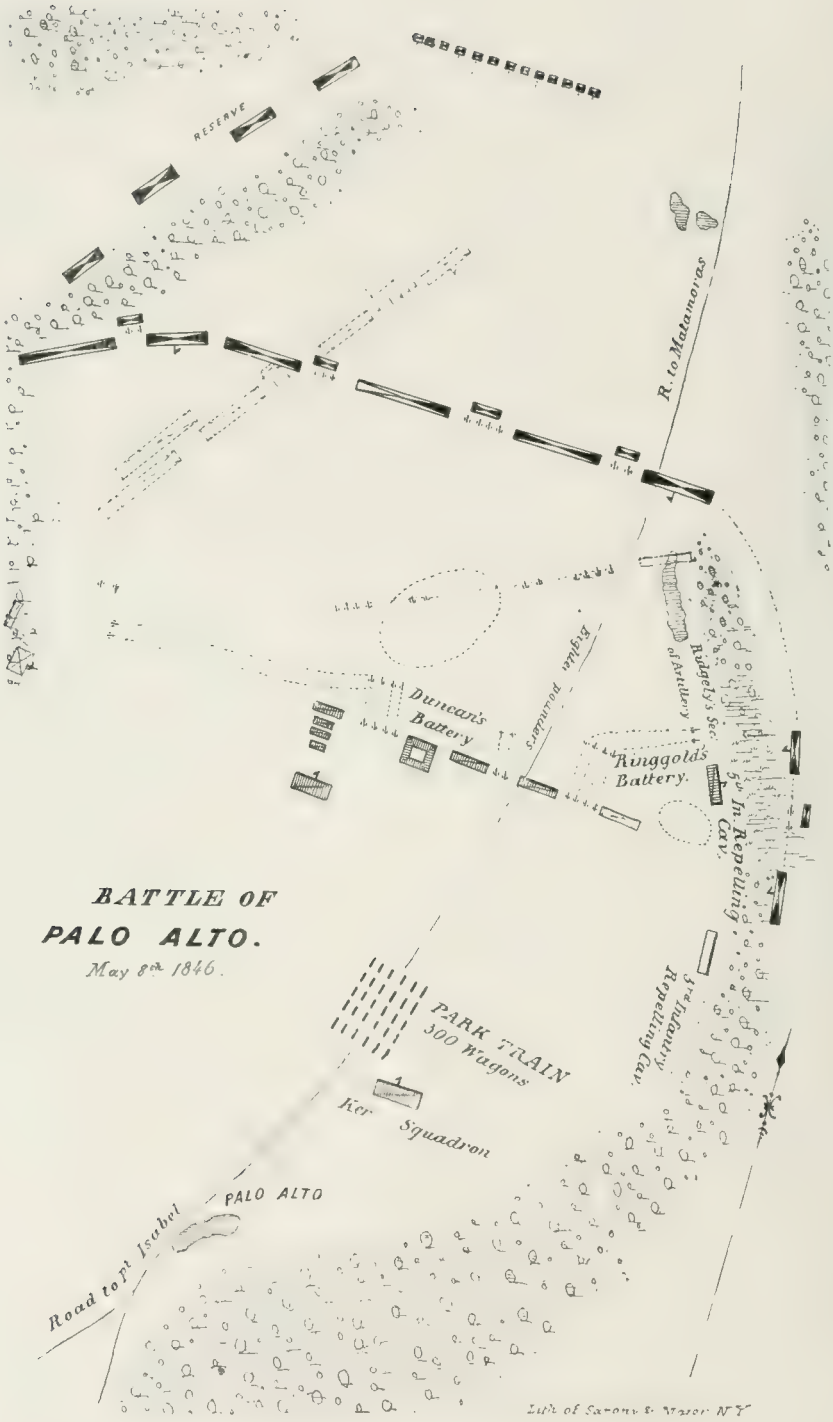
experience. The American generalship was of a high order. Considered tactically, some minor errors, due probably to overconfidence, are perceived; but in most cases the principal dispositions will be approved by all. Considered strategically, it may be said that General Taylor's dazzling victories could not be decisive because of his theater of operations. But the very cause and origin of the war compelled operations in that theater. Criticisms of General Scott's unbroken record of successful battles are in most cases merely captious. As his Government failed to properly support and supply him with men, animals, clothing, rations, transportation, and money, he was finally compelled to choose either indefinite inaction or the hazardous course which he preferred.

General Grant says:

> But General Scott's successes are an answer to all criticism. He invaded a populous country, penetrating 260 miles into the interior, with a force at no time equal to one-half of that opposed to him; he was without a base, the enemy was always intrenched, always on the defensive; yet he won every battle, he captured the capital and conquered the Government. Credit is due to the troops engaged it is true, but the plans and the strategy were the general's.

Our troops were always compelled to fight against odds. Their numbers in some cases were less than one-third those of the enemy, as at Buena Vista and in the valley of Mexico, and they never equaled him even when he occupied carefully fortified positions of great strength well supplied with artillery, such as Monterey, Cerro Gordo, Contreras, and the other powerful works in the valley. The skill of the officers, the tremendous moral force due to a succession of victories, and the sublime faith of the generals in their troops and of the troops in their generals, added to skill and courage, compensated for governmental neglect, the ultimate effect of which has been to make the splendor of their achievements still more dazzling.

The number of graduates who rendered distinguished services in the Mexican war is many times greater than the whole number who had graduated before 1812–13. The list of those who were "brevetted for gallant and meritorious services" on the field of battle runs into the hundreds. Many were


RESERVE
R. to Matamoras
Duncan's Battery
Ringgold's Battery
Rifles
Squadrons
Artillery
Repelling Cav.
Repelling Cav.
PARK TRAIN
300 Wagons
Ker Squadron
PALO ALTO
Road to Pt Isabel
BATTLE OF
PALO ALTO.
May 8th 1846.

brevetted twice and a number three times. A large number of these gentlemen afterwards became prominent actors in the greatest of our wars (now happily a thing of the past), and their names are to-day household words, while their biographies are well known to all Americans. It is therefore unnecessary to sketch their Mexican war records at any great length, but it is thought that a few references to some of their exploits in that contest will best elucidate the subject in hand.

It has been stated that the great majority of our officers were thoroughly proficient in handling their own arms in conjunction with the other arms on the battlefield. This may be best illustrated by references to some of the battles of the war.

At Palo Alto, while all the arms certainly did well, yet the battle was won almost entirely by the light artillery. The skill displayed by Major Ringgold, Captain Duncan, and Lieutenants Churchill and Ridgely in handling their guns to the best advantage through all the phases of the action was highly extolled at the time and has been admired ever since.

General Taylor reports:

> Our artillery, consisting of two 18-pounders and two light batteries, was the arm chiefly engaged, and to the excellent manner in which it was maneuvered and served our success is mainly due.

Mansfield's History of the Mexican War, page 37, says:

> The continuous fire of artillery disordered and drove back the enemy's columns. On the left wing of our Army attacks of the Mexicans were met by Duncan's battery and by other troops of that division. The combat on our side was chiefly carried on by artillery, and never was there a more complete demonstration of the superior skill and energy of that arm of the service as conducted by the accomplished graduates of West Point. He who was the life and leader of the Light Artillery—Major Ringgold—was, in this engagement, mortally wounded, and died in a few days.

Very early on the following morning, May 9, 1846, General Arista retired to a strong position at Resaca de la Palma, where he received a reenforcement of 2,000 infantry and "a strong body of cavalry." Having posted his troops with much care, he was attacked by the Americans about

2 o'clock p. m. All arms participated with credit as before, but the chief glory of that day was justly awarded to Captain May and his squadron of dragoons, who charged and captured the Mexican batteries, which were much more effectively handled than on the previous day. Though they could not hold the guns nor bring them away, yet they were silenced, the general in command of them was captured, and, upon the advance of the American line, the whole Mexican army took to flight and was never again assembled north of the Rio Grande.

General Taylor reports:

> Perceiving that no decisive advantage could be gained until this artillery was silenced, I ordered Captain May to charge the batteries with his squadron of dragoons. This was gallantly and effectively executed; the enemy was driven from his guns, and General La Vega, who remained alone at one of the batteries, was taken prisoner. The squadron, which suffered much in this charge, not being immediately supported by infantry, could not retain possession of the artillery taken, but it was completely silenced.
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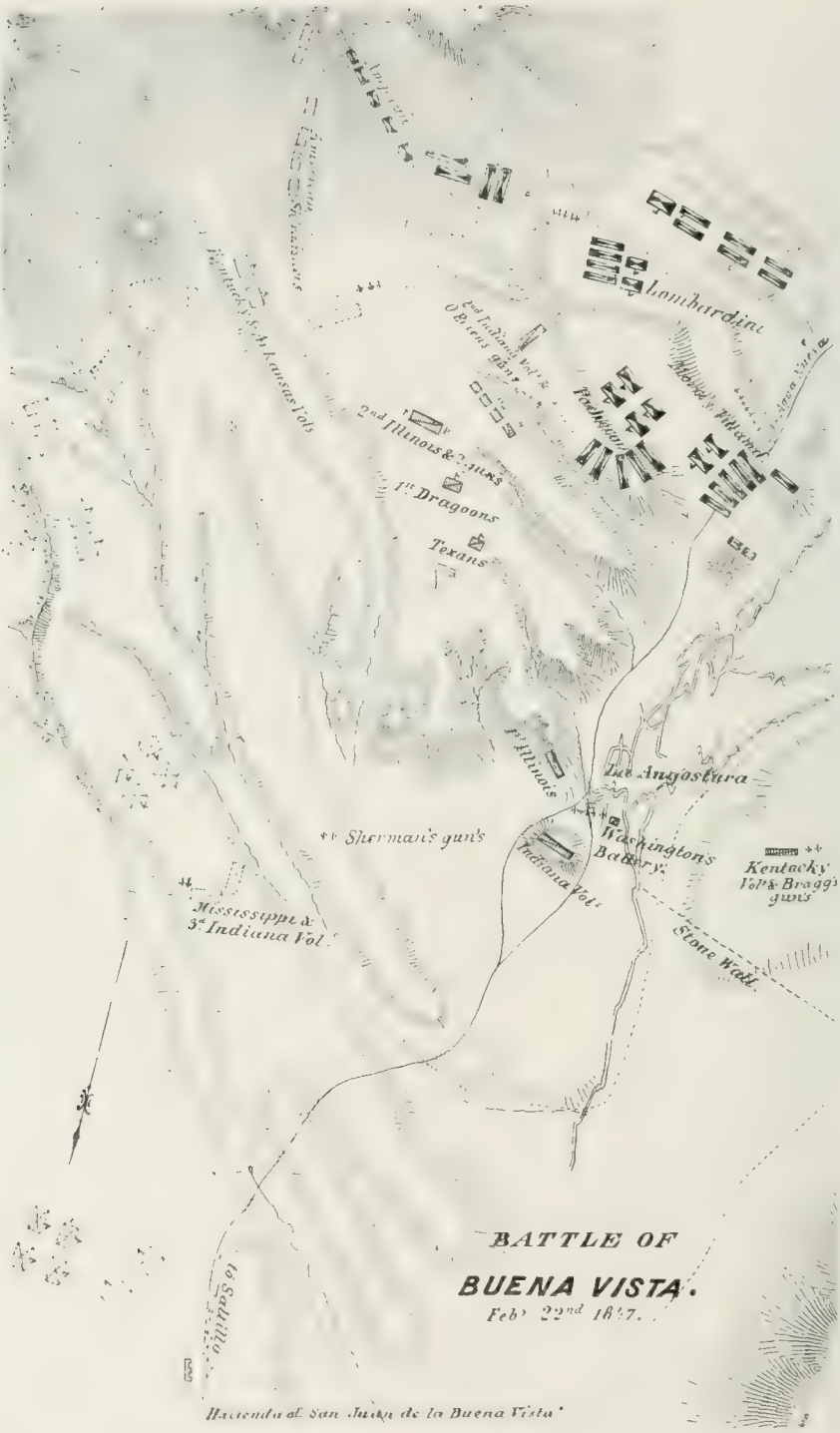
> * * * * * * *
>
> It affords me peculiar pleasure to report that the fieldwork opposite Matamoras has sustained itself handsomely during a cannonade and bombardment of one hundred and sixty-eight hours.

This fieldwork (Fort Brown) was planned and constructed by Captain Mansfield, of the Engineers, who, together with Major Brown and Captain Hawkins, of the Seventh Infantry, and Captain Bragg, of the Light Artillery, were "greatly distinguished" in the defense.

Captain Mansfield, with others, again distinguished himself in the reconnaissance before the attacks upon the works of Monterey and in the battle also.

The battle of Monterey consisted of a series of severe combats (mostly assaults on the enemy's works) extending over three days, September 21 to 23, inclusive. Here the foot troops won the prize for distinguished and effective work. General Worth, with his division, had been ordered to seize the Saltillo road and to attack the forts to the west of Monterey and to prevent a concentration of forces against him. A strong demonstration by large detachments from the main body was made before the eastern front. This speedily


Lombardini
2nd Illinois & Arkansas
1st Dragoons
Texans
Hacienda
Lte Angostura
Washingtons Battery
Kentucky Vol's & Bragg's guns
Stone Wall
Mississippi & 3d Indiana Vol.
BATTLE OF
BUENA VISTA.
Feb'y 22nd 1847.
Hacienda of San Juan de la Buena Vista

developed into an assault upon the forts, fortified houses, and intrenchments in that locality. After a hard fight the main body of the attacking force was repulsed with heavy loss, but two companies of the First Infantry under Captain Backus had captured a solidly constructed building suitable for defense, and being encumbered with wounded, held their ground and did not retreat with their regiment. Being isolated, they were under a heavy fire from all sides, but by superior marksmanship they held their position with great tenacity and silenced most of the fire against them, including that of a light battery, which lost many cannoneers and retired. Soon after, the Americans assaulted a neighboring work called "Fort Teueria." The assaulting troops had already lost a third of their strength and were about to retreat when Captain Backus, having completed a change of position, opened so telling a fire on the rear of Fort Teueria that the enemy wavered, whereupon the assault was renewed with entire success. By this exploit the Americans secured a footing in the fortifications of the east side of Monterey.

During this time and later General Worth's command executed four very gallant attacks against superior numbers in positions of great natural and artificial strength. Colonel Childs carried Independence Hill and the Bishop's Palace, Captain C. F. Smith carried Federacion Hill, and General Persifor Smith carried Fort Soldado. Each of these exploits deserves a full description, but, like many other glorious acts, can not be noticed here.

Many were justly complimented on their soldier-like deeds, but General Howard says: "Capt. Electus Backus, of the First Infantry, with Mansfield, became the brilliant point in these operations."

The light artillery played a highly important part in many of the battles in Mexico, especially at Palo Alto and Buena Vista. In the later engagement General Taylor had no Regulars excepting his light artillery and part of his small force of cavalry. His infantry was composed of the new volunteer regiments, of which the Mississippi Rifles (Colonel Davis) had taken part in the battle of Monterey. The others

had had no experience in fighting, excepting that a few small parties had been engaged in slight skirmishes.

Expecting an attack by Santa Ana with about 20,000 men and 20 guns, General Taylor took post at the Pass of Angostura, near Buena Vista. His force numbered 4,300 Volunteers and 450 Regulars, with 15 guns. After some preliminary skirmishes on the 22d of February, Santa Ana began the battle by launching two columns to the attack at about 8 o'clock the following morning.

The left column, consisting of two regiments and three battalions (about 3,000 infantry and engineers), endeavored to follow the course of the great road in an effort to overwhelm Washington's battery, which was posted directly in its path. The column was defeated, thrown into disorder, and driven into the neighboring ravines by the fire of the battery alone.

The second column, composed of Pacheco's and Lombardini's divisions, numbering about 7,000 men, broke the American left center, cut off the extreme left (which finally reached the trains parked at Buena Vista by a wide detour), and secured possession of the narrow passage along the base of the mountain; and, in obedience to previous instructions, moved by that road to the American left rear. They were immediately joined by Ampudia's division and by a strong force of cavalry from the reserve, thus forming an important array of troops upon Taylor's flank and left rear, and the Americans were at this moment in an unpleasant situation that might easily have become very critical.

The Mexican cavalry presently gained the head of the column and ultimately attacked Buena Vista more than a mile in rear of Taylor's right, but, after a hard fight, they were beaten off and accomplished nothing.

The infantry column, very deep and unwieldy, was opposed in front by Davis's Mississippi Rifles, reenforced after a time by the Third Indiana and a fieldpiece. After a very severe combat the leading regiments were checked and thrown back upon the column, causing much confusion. The ground was cut up by ravines and very unfavorable for rapid deployment and, what was worse, this antiquated formation had been

under artillery fire almost from the moment it broke the American left center.

The batteries of Sherman and Bragg, at a moderate range, had played upon the left flank with such effect that some of the rear battalions were broken and driven back to the Mexican lines.

The result of the check in front, combined with the murderous artillery fire on the flank of the column, to which no adequate reply could be made, was that, after very heavy losses, the remains of Pacheco's, Lombardini's, and Ampudia's divisions lost all semblance of formation and became simply a mass of fugitives. As the artillery had complete command of their position and of the only route by which they could retire, their speedy surrender seemed inevitable, when a ruse of the wily Santa Ana caused the firing to cease and the disordered mass was enabled to drift back to the Mexican lines.

"Certain it is that advantage was taken of the flag to withdraw the compromised troops from their perilous position."[a]

While the work of the light artillery at this juncture was highly extolled, the common opinion was that Colonel Davis and his regiment were entitled to the chief credit for the repulse of the ponderous infantry column.

The final effort of Santa Ana consisted in launching his reserve, reenforced by troops that had been rallied to about 12,000 men, in a solid column against the American center.

"I discovered that our infantry (Illinois and Second Kentucky) had engaged a greatly superior force of the enemy—evidently his reserve—and that they had been overwhelmed by numbers. The moment was most critical. Captain O'Brien with two pieces had sustained this heavy charge to the last and was finally obliged to leave his guns on the field—his infantry support being entirely routed. Captain Bragg, who had just arrived from the left, was ordered at once into battery. Without any infantry to support him, and at the imminent risk of losing his guns, this officer came rapidly into action, the Mexican line being but a few yards from the muzzle of his pieces. The first discharge of canister caused

[a] Ripley, vol. I, p. 415.

the enemy to hesitate; the second and third drove him back in disorder and saved the day."

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"No further attempt was made by the enemy to force our position."

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"Our loss has been especially severe in officers, 28 having been killed upon the field."

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"Colonel Hardin, First Illinois, and Colonel McKee and Lieutenant Colonel Clay, Second Kentucky regiment, fell at this time, while gallantly leading their commands.

"No loss falls more heavily upon the army in the field than that of Colonels Hardin and McKee and Lieutenant Colonel Clay. Possessing in a remarkable degree the confidence of their commands, and the last two having enjoyed the advantage of a military education, I had looked particularly to them for support in case we met the enemy. I need not say that their zeal in engaging the enemy, and the cool and steadfast courage with which they maintained their positions during the day, fully realized my hopes and caused me to feel yet more sensibly their untimely loss."

"I perform a grateful duty in bringing to the notice of the Government the general good conduct of the troops.

* * * * * * *

"The services of the light artillery, always conspicuous, were more than usually distinguished. Moving rapidly over the roughest ground, it was always in action at the right place and the right time, and its well-directed fire dealt destruction in the masses of the enemy. While I recommend to particular favor the gallant conduct and valuable services of Major Munroe, chief of artillery, and captains Washington, Fourth Artillery, and Sherman and Bragg, Third Artillery, commanding batteries, I deem it no more than just to mention all the subordinate officers. They were nearly all detached at different times and in every situation exhibited conspicuous skill and gallantry.

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"Captain Shover, in conjunction with Lieutenant Donaldson, First Artillery, rendered gallant and important service in repulsing the cavalry of General Miñon.

"The regular cavalry, under Lieutenant-Colonel May, with which was associated Captain Pike's squadron of Arkansas Horse, rendered useful service in holding the enemy in check and in covering the batteries at several points. Captain Steene, First Dragoons, was severely wounded early in the day while gallantly endeavoring, with my authority, to rally the troops, which were falling to the rear."

"The Mississippi Rifiemen, under Colonel Davis, were highly conspicuous for their gallantry and steadiness, and sustained throughout the engagement the reputation of veteran troops. Brought into action against an immensely superior force, they maintained themselves for a long time unsupported and with heavy loss, and held an important part of the field until reenforced. Colonel Davis, though severely wounded, remained in the saddle until the close of the action. His distinguished coolness and gallantry at the head of his regiment on this day entitled him to the particular notice of the Government."[a]

Ripley's History of the War with Mexico, Vol. I, page 442, says:

> The fortunes of that day twice hung in the balance. That they were immediately saved once by the brilliant courage and hard fighting of Davis's Mississippi regiment, and again by the timely arrival and splendid execution of Bragg's battery, and that Davis first suggested his own movement, and that Bragg moved without orders in the direction of the plateau, and that both came in at the proper time and were both successful, these facts, while they render any comment upon the conduct of those officers or their commands unnecessary, yet add examples to the many of the supremacy of fortune in war.[b]

We will now briefly notice a few of the exploits in another theater. It having been decided to capture Vera Cruz and to advance from that base upon the capital city of the Mexican Republic, General Scott's army of 12,000 men was landed

[a] General Taylor's report.

[b] We humbly suggest that what is here attributed to chance should be ascribed to skill, the result of education, reflection, and experience. In killed and wounded the American loss was nearly 750; that of the enemy was more than 2,000.

near the former place on March 9, and on the 12th the investment was completed. Progress was greatly delayed by violent northers, but the trenches were opened on the 18th, the bombardment began on the 22d, and the city and its famous castle surrendered on the 27th.

"Five thousand prisoners surrended on parole; near 500 pieces of fine artillery taken; the best port of Mexico captured and possessed; and the famed Castle of San Juan, said to be impregnable, and which had been refitted and equipped in the best possible manner, yielded to the superior skill and energy of the Americans."[a]

"The capture of Vera Cruz was an affair, in the main, of the staff and artillery. The engineers located and constructed the batteries with such good judgment and care that there were few casualties; the fixed ammunition used by the artillery was prepared under the direction of ordnance officers with a skill insured by their education and their experiments and labors in the laboratory. The infantry worked upon the trenches and batteries, and, as guards, gave protection and security day and night, while the latter were used, and, in addition, did picket duty in front and rear of the lines."[b]

It should be said, in addition, that Colonel Harney, with the dragoons, beat off and dispersed the detachments that attempted annoyance from the outside.

In the entire operation the American loss in killed and wounded was 67. A Mexican historian says that their loss was 400 killed and 200 wounded.

General Scott's report contained many compliments, but we will notice only his remarks upon his fellow-soldier of 1812, whose services the General had especially requested, and who, under his orders, conducted the siege:

> In consideration of the great services of General Totten in the siege that has just terminated most successfully, and the importance of his presence at Washington as the head of the Engineer Bureau, I intrust this dispatch to his personal care, and beg to commend him to the very favorable consideration of the Department.

On the 8th of April, ten days after the surrender of Veracruz, General Scott's army, though very short of transporta-

[a] The Mexican War, Mansfield, p. 172.
[b] Hist. of the Mex. War, Gen. C. M. Wilcox, p. 261.

tion, began its march by divisions toward Jalapa. General Twiggs, commanding the leading division, found the enemy at Cerro Gordo in such strength that he halted, April 11, at Plan del Rio to wait for reinforcements. During the six following days reconnaissance was very actively carried on, principally by engineer officers, suitably escorted. Basing himself on their reports, General Scott directed the opening of roads or trails leading through the dense chaparral and very rough broken ground toward several points of the enemy's line, while the latter industriously fortified their positions. On April 17 the general issued his celebrated order, describing the battle of the next day with almost perfect accuracy.

"The plan of the attack, sketched in General Orders III herewith, was finely executed by this gallant army before 2 o'clock p. m. yesterday. We are quite embarrassed with the results of victory—prisoners of war, heavy ordnance, field batteries, small arms, and accouterments. About 3,000 men laid down their arms, with the usual proportion of field and company officers, besides 5 generals, several of them of great distinction—Pinson, Jarrero, La Vega, Noryuga, and Obando. A sixth general, Vasquez, was killed in defending the battery (tower) in the rear of the line of defense, the capture of which gave us those glorious results. Our loss, though comparatively small in number, has been serious.

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"Second Lieutenant Derby, Topographical Engineers, I saw also at the same place (tower) severely wounded; Captain Patten, Second U. S. Infantry, lost his right hand. Major Sumner, Second U. S. Dragoons, was slightly wounded the day before, and Captain Johnston, Topographical Engineers, (now lieutenant-colonel of infantry), was very severely wounded in reconnoitering some days earlier.

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"A portion of the First Artillery under the often-distinguished Brevet-Colonel Childs, the Third Infantry under Captain Alexander, the Seventh Infantry under Lieutenant-Colonel Plympton, and the Rifles under Major Loring, all under the temporary command of Colonel Harney, Second Dragoons, composed that detachment. The style of execution which I

had the pleasure to witness was most brilliant and decisive. The brigade ascended the long and difficult slope of Cerro Gordo, without shelter and under the tremendous fire of artillery and musketry, with the utmost steadiness, reached the breastworks, drove the enemy from them, planted the colors of the First Artillery, Third and Seventh Infantry, the enemy's flag still flying, and after some moments of sharp firing, finished the conquest with the bayonet. It is a most pleasing duty to say that the highest praise is due to Harney, Childs, Plympton, Loring, Alexander, their gallant officers and men, for this brilliant service independent of the great service which soon followed.[a]

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* * * "Twiggs's division, reinforced by Shields's brigade of volunteers, was thrown into position on the 17th, and was of necessity drawn into action in taking up the ground for its bivouac and the opposing height for our heavy battery. It will be seen that many of our officers and men were killed or wounded in this sharp combat, handsomely commenced by a company of the Seventh Infantry under Brevet First Lieutenant Gardner, who is highly praised by all his commanders for signal services. Colonel Harney, coming up with the Rifle Regiment and First Artillery (also parts of his brigade), brushed away the enemy and occupied the height on which, in the night, was placed a battery of one 24-pounder and two 24-pound howitzers under the supervision of Captain Lee, Engineers, and Lieutenant Hagner, Ordnance. These guns opened next morning, and were served with effect by Captain Steptoe and Lieutenant Brown, Third Artillery, Lieutenant Hagner, Ordnance, and Lieutenant Seymour, First Artillery. The same night, with extreme toil and difficulty, under the superintendence of Lieutenant Tower, Engineers, and Lieutenant Laidley, Ordnance, one 8-inch howitzer was put in position across the river and opposite to the enemy's right battery.

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"Early on the 18th the columns moved to the general attack, and our success was speedy and decisive. * * *

[a] General Scott's report of the battle of Cerro Gordo, April 18, 1847.

"The moment the fate of the day was decided the cavalry and Taylor's and Wall's field batteries were pushed on toward Jalapa in advance of the pursuing columns of infantry.

* * * * * * *

"In the hot pursuit many Mexicans were captured or slain before our men and horses were exhausted by the heat and distance.

"The rout proved to have been complete, the retreating army, except a small body of cavalry, being dispersed and utterly disorganized. The immediate consequences have been our possession of this important city, the abandonment of the works and artillery at La Hoya, the next formidable pass between Vera Cruz and the capital, and the prompt occupation by Worth's division of the fortress of Perote (second only to San Juan d'Ulloa), with its extensive armament of 66 guns and mortars and its large supply of material.

"I have heretofore endeavored to do justice to the skill and courage with which the heights of Cerro Gordo were attacked, naming the regiments most distinguished, and their commanders, under the lead of Colonel Harney. Lieut. G. W. Smith led the engineer company as part of the storming force, and is noticed with distinction. The reports of this assault make favorable mention of many in which I can well concur, having witnessed the daring advance and perfect steadiness of the whole. Besides those already named, Lieutenant Brooks, Third Infantry; Lieutenant Macdonald, Second Dragoons; Lieutenant Vandorn, Seventh Infantry (all acting staff officers); Captain Magruder, First Artillery; and Lieutenant Gardner, Seventh Infantry, seem to have won special praise.

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"In expressing my indebtedness for able assistance—to Lieutenant-Colonel Hitchcock, Acting Inspector-General; to Majors Smith and Turnbull, respective Chiefs of Engineers and Topographical Engineers; to their assistant lieutenants—Lieutenants Mason, Beauregard, Stevens, Tower, G.W. Smith, McClellan, Engineers; and Lieutenants Derby and Hardcastle, Topographical Engineers; to Captain Allen, Chief Quartermaster, and Lieutenant Blair, Chief Commissary, and to Lieutenants Hagner and Laidley, Ordnance, all actively

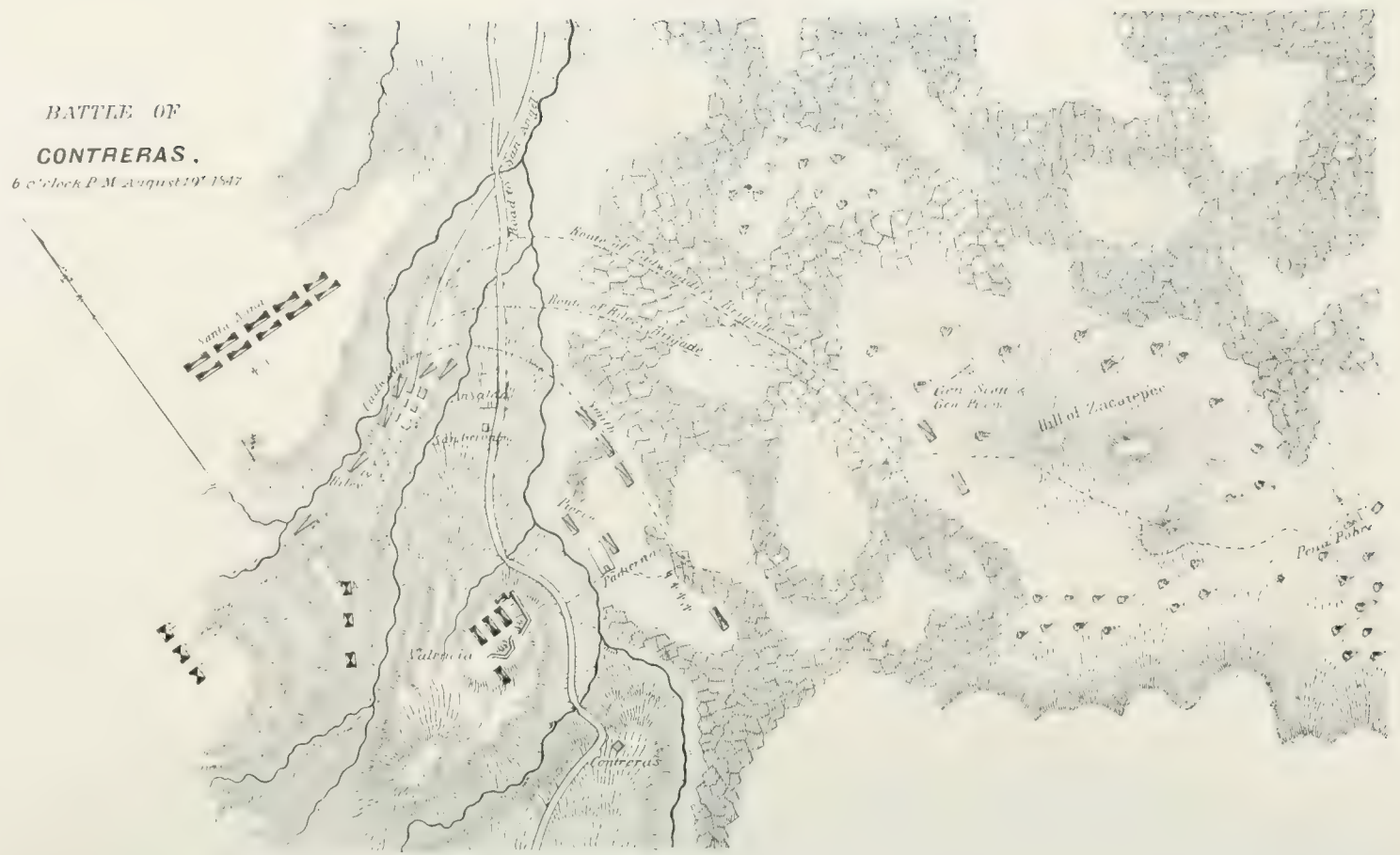
employed—I am compelled to make special mention of the services of Capt. R. E. Lee, Engineers. This officer greatly distinguished himself at the siege of Vera Cruz, was again indefatigable during these operations, in reconnaissance as daring as laborious, and of the utmost value. Nor was he less conspicuous in planting batteries and in conducting columns to their stations under the heavy fire of the enemy. My personal staff—Lieutenants Scott, Williams, and Lay, and Major Van Buren, who volunteered for the occasion—gave me zealous and efficient assistance. Our whole force present, in action and in reserve, was 8,500. The enemy is estimated at 12,000 or more. About 3,000 prisoners, 4,000 or 5,000 stands of arms, and 43 pieces of artillery are taken. By the accompanying return, I regret to find our losses more severe than at first supposed, amounting in the two days to 33 officers and 398 men—in all, 431, of whom 63 were killed. The enemy's loss is computed to be from 1,000 to 1,200.[a]

"Ten thousand men made prisoners of war, 700 splendid cannon, 10,000 stands of arms, 30,000 shells and shot, were the spoils of the triumphant victories which had attended the American Army in a campaign of only two months."[b]

After Cerro Gordo, there was nothing to prevent General Scott from marching to the capital. But for reasons which he considered good and sufficient, he decided upon a different course; among these were the numerical weakness of his Army, the fact that several regiments of volunteers were about to be discharged, thus reducing his strength still further, and the fact that supplies and reinforcements which he had confidently expected were not forthcoming. Leaving garrisons in Vera Cruz, Jalapa, and the Castle of Perote, he advanced with the main Army to Puebla, where, on the 1st of June, his entire force numbered only 5,000 effective men.

The reinforcements that reached Vera Cruz and all the garrisons, excepting those of Vera Cruz and Perote, were concentrated at Puebla, at which point there were assembled on August 6 about 14,000 men. The sick in hospitals at Puebla and the necessary garrison for that place aggregated 3,261 men.

[a] General Scott's supplementary report, April 23, 1847.
[b] Mansfield's History of the Mexican War, p. 201.


BATTLE OF
CONTRERAS.
6 o'clock P.M. August 19th 1847
Santa Anna
Cadenas
Ansaldo
Valencia
Contreras
Gen Scott &
Gen Pillow
Hill of Zacatepec
Penon Point

Thus, by abandoning his line of communications, General Scott was able to advance with 10,738 men, half of them volunteers, to attack 30,000 men behind powerful works, supplied with abundant artillery. Without doubt he had staked everything on the chance of success.

The march upon the capital began August 7, and on the 13th the Army was assembled 15 miles from that city at and in the vicinity of Ayotla. From this point three roads led to the city; and, in exploring the most direct one, the Dragoons and Mounted Rifles, escorting General Smith and Engineers, took such liberties with the powerful and heavily garrisoned works of El Peñon and Mexicalcingo that General Scott pronounced this "the boldest reconnaissance of the war."

It was finally decided to advance by the road south of Lake Chalco to San Augustin, which place was seized August 17, and next day the entire army had arrived in that vicinity.

Within 5 miles of San Augustin were the strong posts of San Antonio and Contreras; the former on the direct road to the capital, very strong and nearly inaccessible excepting by way of a narrow causeway flanked by deep ditches; the latter on the great road from Acapulco to Mexico, also very strong, well fortified, armed with 22 cannon and occupied by General Valencia with 7,000 veterans, said to be the flower of the Mexican army. It was decided to mask San Antonio and to attack Contreras.

A path having been made passable through the pedrigal or fields of lava, the brigade of Gen. Persifor Smith was on August 19 directed against Contreras and drove in the enemy's cavalry, skirmishers and advanced posts, but did not attack the main work. Two light batteries, brought forward with great difficulty, were opened against the enemy's works, but after a severe contest they were silenced. Leaving the guns supported by several companies of infantry (later reinforced by two regiments of Pierce's brigade) before the works, General Smith moved the remainder of his brigade to the right upon San Geronimo, to cut Contreras off from the capital and also from communication with Santa Ana, who with

12,000 men had advanced to support Valencia, and who ultimately approached to within 2,000 yards of his works.

The brigade of General Smith was reinforced by those of Riley and Cadwalader, and all three were at San Geronimo, interposed between Valencia and Santa Ana, before dark. The brigade of Shields was toiling through the pedrigal and joined the others during the night. The light batteries, having suffered severely, were withdrawn out of range. The situation at this time would seem to have called for immediate and vigorous action of some sort on the part of the enemy. It is asserted by some that the Mexicans did not know the movements of their enemy; but this would seem incredible. Be that as it may, General Valencia spent the precious moments in writing a very extravagant report of his "victory" and in "conferring brevets upon his officers."

Most of the night, which was rainy and very dark, was spent by the Engineer officers in searching for a possible route to the rear of the enemy's works. The movement began at 3 o'clock a. m. on the 20th, with Riley's brigade in the lead. The brigade of Shields remained at San Geronimo to withstand any movement of Santa Ana. The other three brigades did not finish their movement until long after daylight. Yet they remained undiscovered until they were almost ready to assault, the enemy's attention being more particularly devoted to the troops still occupying the first position, near Padierna.

At about 6.30 a. m. Valencia's position was assaulted in rear and on both flanks, and in a few minutes his entire force was utterly routed and "totally destroyed as a military body."

"I doubt whether a more brilliant or decisive victory—taking into view ground, artificial defenses, batteries, and the extreme disparity of numbers, without cavalry or artillery on our side—is to be found on record. Including all our corps directed against the intrenched camp, with Shields's brigade at the hamlet, we positively did not have over 4,500 rank and file, and we know by sight, and more certainly by many captured documents and letters, that the enemy had actually engaged on the spot 7,000, with at least 12,000 more hovering within sight and striking distance, both on the 19th and 20th.

"All not killed or captured now fled with precipitation. Thus was the great victory of Contreras achieved; our road to the capital opened; 700 of the enemy killed; 813 prisoners, including 88 officers, 4 generals, besides various colors and standards, 22 pieces of brass ordnance, half of large caliber, thousands of small arms and accouterments, an immense quantity of shot and shell, powder and cartridges, 700 pack mules and many horses—all in our hands."[a]

Two of these guns were Santa Ana's trophies from the field of Buena Vista. They had been "lost without dishonor" by a battery of the Fourth Artillery, Captain O'Brien, at Buena Vista. They were now "recovered with glory" by Capt. Simon Drum's battery of the same regiment.

The fortified post of San Antonio, the bridge head of Churubusco, and the fortified convent of San Pablo adjacent were all captured after hard fighting on the same day. While the battle of Churubusco was in progress the brigades of Shields and Pierce were sent by the commanding general to attack the Mexican reserves in rear of the lines of Churubusco. The resulting combat, called the "battle of Portales," was very severe for a time, but terminated in the fifth American victory on that memorable 20th of August.

"So terminated the series of events which I have but feebly presented. My thanks were freely poured out on the different fields to the abilities and services of generals and other officers, to the zeal and prowess of all, the rank and file included. But a reward infinitely higher, the applause of a grateful country and Government, will, I can not doubt, be accorded in due time to such merit of every sort displayed by this glorious army, which has now overcome all difficulties, distance, climate, ground, fortifications, and numbers.

"It has in a single day in many battles as often defeated 32,000 men, made about 3,000 prisoners, including 8 generals, two of them ex-Presidents, and 205 other officers; killed and wounded 4,000 of all ranks, besides entire corps dispersed and dissolved; captured 37 pieces of ordnance, more than trebling our siege train and field batteries, with a large number of

[a] General Scott's report.

small arms and a full supply of ammunition of every kind. These great results have overwhelmed the enemy. Our loss amounts to 1,053; 139, including 16 officers, were killed; 876, with 60 officers, were wounded.

* * * * * * *

"After so many victories we might with but little additional loss have occupied the capital the same evening.

* * * * * * *

"I halted our victorious corps at the gates of the city, at least for a time, and have them now quartered" etc.[a]

Negotiations were undertaken, but failed, and operations were resumed on the 7th of September. Next day occurred the battle of Molino del Rey, in which 3,250 Americans defeated 14,000 Mexicans, who occupied a very powerful line of works, flanked by the fire of the Castle of Chapultepec. Four thousand lancers, the finest cavalry in the world, were completely bluffed and intimidated by Major Sumner with 270 dragoons, and they took no part in the battle except that of spectators. The enemy was driven from his works with heavy losses, including all his artillery and 800 prisoners; but, as at Buena Vista, Santa Ana proclaimed a great victory won by himself—a "victory" the anniversary of which is celebrated in Mexico to this day.

After the destruction of the powerful stone works of Molino del Rey, including the Casa Mata Fort, there still remained between the American army and the capital only the Castle of Chapultepec. This renowned fortress was battered all day on September 12 and next morning was carried by assault. The Belen and San Cosmo causeways and gates were captured in the afternoon of the same day.

On September 14 the city was occupied with little opposition, and, although minor operations continued for a time, the war was practically at an end.

Among those who were breveted for gallantry in the severe battles of Molino del Rey and Chapultepec was Second Lieut. U. S. Grant, of the Fourth Infantry.

"At the end of another series of arduous and brilliant operations of more than forty-eight hours' continuance this

[a] General Scott's report.

glorious army hoisted, on the morning of the 14th, the colors of the United States on the walls of this palace."[a]

"The victory of the 8th at the Molino del Rey was followed by daring reconnaissances on the part of our distinguished Engineers—Captain Lee, Lieutenants Beauregard, Stevens, and Tower. Their operations were directed principally to the south—toward the gates of the Piedad, San Angel (Mino Perdido), San Antonio, and the Paseo de la Viga.

"This city stands on a slight swell of ground, near the center of an irregular basin, and is girdled by a ditch in its greater extent—a navigable canal of great breadth and depth—very difficult to bridge in the presence of an enemy, and serving at once for drainage, custom-house purposes, and military defense, leaving eight entrances or gates over arches, each of which we found defended by a system of strong works that seemed to require nothing but some men and guns to be impregnable.

"Outside and within the cross fires of those gates we found to the south other obstacles but little less formidable.

* * * * * * *

"After a close personal survey of the southern gates, covered by Pillow's division and Riley's brigade of Twiggs's—with four times our numbers concentrated in our immediate front—I determined on the 11th to avoid that network of obstacles, and to seek by a sudden diversion to the southwest and west less unfavorable approaches."

* * * * * * *

"The stratagem against the south was admirably executed throughout the 12th and down to the afternoon of the 13th, when it was too late for the enemy to recover from the effects of his delusion. The first step in the new movement was to carry Chapultepec, a natural and isolated mound, of great elevation, strongly fortified at its base, on its acclivities, and heights.

* * * * * * *

"In the course of the same night (that of the 11th) heavy batteries, within easy ranges, were established. No. 1, on our right, under the command of Captain Drum, Fourth Artillery

[a] General Scott's report written in the National Palace of Mexico September 18, 1847.

(relieved late next day, for some hours, by Lieutenant Andrews of the Third), and No. 2, commanded by Lieutenant Hagner, Ordnance—both supported by Quitman's division. No. 3 and 4 on the opposite side, supported by Pillows division, were commanded, the former by Captain Brooks and Lieut. S. S. Anderson, Second Artillery, alternately, and the latter by Lieutenant Stone, Ordnance. The batteries were traced by Captain Huger and Captain Lee, engineer, and constructed by them with the able assistance of the young officers of those corps and the artillery.

* * * * * * *

"The bombardment and cannonade, under the direction of Captain Huger, were commenced early in the morning of the 12th."

Here follows a description of the storm of Chapultepec. The report resumes: "The following are the officers and corps most distinguished in those brilliant operations: The Voltigeur regiment, in two detachments, commanded, respectively, by Colonel Andrews and Lieutenant-Colonel Johnston, the latter mostly in the lead * * * the storming party of Worth's division under Captain McKenzie, Second Artillery, with Lieutenant Selden, Eighth Infantry, early on the ladder and badly wounded; Lieutenant Armistead, Sixth Infantry, the first to leap into a ditch to plant a ladder; Lieutenants Rodgers, of the Fourth, and J. P. Smith, of the Fifth Infantry—both mortally wounded; the Ninth Infantry, under Colonel Ransom, who was killed while gallantly leading that gallant regiment; the Fifteenth Infantry, under Lieutenant-Colonel Howard and Major Woods * * * Colonel Clarke's brigade (Worth's division), consisting of the Fifth, Eighth, and Sixth Regiments of Infantry, commanded, respectively, by Captain Chapman, Major Montgomery, and Lieut. Edward Johnson, the latter specially noticed, with Lieutenants Longstreet (badly wounded, advancing, colors in hand), Pickett, and Merchant, the last three of the Eighth Infantry * * * and another detachment, a portion of the storming party (Twigg's division, serving with Quitman), under Lieutenant Steele, Second Infantry, after the fall of Lieutenant Gantt, Seventh Infantry.

"In this connection it is but just to recall the decisive effect of the heavy batteries Nos. 1, 2, 3, and 4, commanded by those excellent officers Captain Drum, Fourth Artillery, assisted by Lieutenants Benjamin and Porter, of his own company; Captain Brooks and Lieutenant Anderson, Second Artillery, assisted by Lieutenant Russell, Fourth Infantry, a volunteer; Lieutenants Hagner and Stone, of the Ordnance, and Lieutenant Andrews, Third Artillery, the whole superintended by Captain Huger, Chief of Ordnance with this army, an officer distinguished by every kind of merit. The mountain howitzer battery, under Lieutenant Reno of the Ordnance, deserves also to be particularly mentioned. Attached to the Voltigeurs, it followed the movements of that regiment and again won applause.

"In adding to the list of individuals of conspicuous merit I must limit myself to a few of the many names which might be enumerated: Captain Hooker, assistant adjutant-general, who won special applause successively in the staffs of Pillow and Cadwalader; Lieutenant Lovell, Fourth Artillery (wounded), chief of Quitman's staff; Captain Page, assistant adjutant-general (wounded), and Lieutenant Hammond, Third Artillery, both of Shield's staff, and Lieutenant Van Dorn (Seventh Infantry), aid-de-camp to Brigadier-General Smith.

"These operations all occurred on the the west, southeast, and heights of Chapultepec. To the north and at the base of the mound, inaccessible on that side, the Eleventh Infantry, under Lieutenant-Colonel Hébert; the Fourteenth, under Colonel Trousdale, and Captain Magruder's field battery, First Artillery—one section advanced under Lieutenant Jackson—all of Pillow's division—had at the same time some spirited affairs against superior numbers, driving the enemy from a battery in the road and capturing a gun. In these the officers and corps named gained merited praise.

* * * * * * *

"Here (at the Belen Gate) of the heavy battery (Fourth Artillery) Captain Drum and Lieutenant Benjamin were mortally wounded and Lieutenant Porter, its third in rank,

slightly. The loss of these two most distinguished officers the Army will long mourn.

* * * * * * *

"The capital, however, was not taken by any one or two corps, but by the talent, the science, the gallantry, the prowess of this entire army.

* * * * * * *

"And I reassert, upon accumulated and unquestionable evidence, that in not one of those conflicts (the battles in the Valley of Mexico) was this army opposed by fewer than three and a half times its numbers—in several of them by a yet greater excess.

* * * * * * *

"In conclusion I beg to enumerate once more, with due commendation and thanks, the distinguished staff officers, general and personal, who, in our last operations in front of the enemy, accompanied me and communicated orders to every point and through every danger. Lieutenant-Colonel Hitchcock, acting Inspector-General; Major Turnbull and Lieutenant Hardcastle, Topographical Engineers; Major Kirby, Chief Paymaster; Captain Irwin, Chief Quartermaster; Captain Grayson, Chief Commissary; Capt. H. L. Scott, Chief in the Adjutant-General's Department; Lieutenant Williams, Aid-de-camp; Lieutenant Lay, Military Secretary; Major J. P. Gaines, Kentucky Cavalry volunteer Aid-de-camp; Captain Lee, so constantly distinguished, also bore important orders from me (September 13) until he fainted from a wound and the loss of two nights' sleep at the batteries. Lieutenants Beauregard, Stevens, and Tower, all wounded, were employed with the divisions, and Lieuts. G. W. Smith and G. B. McClellan with the company of Sappers and Miners. Those five lieutenants of Engineers, like their captain, won the admiration of all about them. The Ordnance officers, Captain Huger, Lieutenants Hagner, Stone, and Reno, were highly effective and distinguished at the several batteries; and I must add that Captain McKinstry, assistant quartermaster, at the close of the operations executed several important commissions for me as a special volunteer."

During the action in front of the San Cosmo Gate, Captain Brooks, in command of a detachment of the Second Artillery, and Lieut. U. S. Grant, with a detachment of the Fourth Infantry, attacked and, after a very hard fight, carried a breastwork defended by a large force of the enemy. To hasten this result it was necessary to bring forward a piece of artillery along the causeway swept by the enemy's fire. This was done by Lieut. H. J. Hunt, Second Artillery, whose detachment lost more than half its numbers; but the move was decisive.

Of this incident General Worth, the division commander, said in his report: "It has never been my fortune to witness a more brilliant exhibition of courage and conduct."[a]

Some of the most furious combats of the war were among those of the minor expeditions. The following will serve as a specimen:

On the morning of the 6th (December, 1846) Kearny's command met and defeated at San Pasqual, about 40 miles from San Diego, a body of Mexicans under Gen. Andres Pico. Kearny had at this time about 300 men, composed of Companies B and C, First Dragoons, and volunteers. The action was severe, the First Dragoons losing 3 officers—Captains Moore and Johnston and Lieutenant Hammond—and 14 men killed, and about all the dragoons were wounded, principally with lance thrusts. General Kearny himself received two wounds; Lieutenant Warner, of the Topographical Engineers, three; and Captain Gillespie, of the volunteers, three. Kearny was compelled to remain at San Bernardino until the 11th on account of wounds, but reached and occupied San Diego December 12.[b]

The Hon. Randolph B. Marcy, Secretary of War during the administration of President Polk, expressed himself as follows (December, 1848):

Among the considerations which render the U. S. Military Academy at West Point an appropriate depository of the trophies of the successful victories of our arms in Mexico is the admitted fact that the graduates of that institution contributed in an eminent degree to our unexampled career of success.

We have thus briefly noticed some of the exploits of the American Army in the War of 1812–1815, and in the Mex-

[a] General Scott's report written in the National Palace of Mexico September 18, 1847.
[b] Historical Sketch of the 1st U. S. Cavalry, by Capt. R. P. P. Wainwright.

ican war with special reference to the work of the graduates of the Military Academy.

While the plans were formed and the orders for the armies were issued by the commanding generals, the information upon which those plans and orders were based was in the latter contest procured almost entirely by graduates or under their personal direction, and the execution of the general's orders was largely in their hands also; and the excellence of all this work is shown not only by its results, but also by the published official opinions of various general officers, not graduates themselves. Such opinions, being the best possible evidence, have been extensively quoted throughout this paper.

While there is no pretense of a monopoly of military talents, virtues, or skill, it may nevertheless be regarded as demonstrated that military education is a useful, natural, and proper means for the development of them all. And when combined with practical experience, more or less extensive, which is really the final course of a thorough military training, the foundation for good officers of any grade is, perhaps, as well laid as can be expected from human wisdom.

Certainly the United States Military Academy can not be regarded as an unprofitable investment. Although for a long time there was much said and written in opposition to it, the "logic of events" seems to have ended that discussion.

The experience of Scott and Taylor has justified the foresight of Washington, and later experience has still further confirmed it.[a]

The following table, which relates to the Mexican War and which refers to and includes only graduates, has been compiled with care, and is believed to be very nearly, if not precisely, accurate. It is intended to show their losses and to give an idea of the estimate placed upon their services by the general officers under whom they served. All the brevets

[a] "It remains to show that four years is ample to make good officers for the Army, as a body competent to all the demands of the service and to meet all their responsibilities. To this end I have only to cite the career of our Army in the Mexican War, the officers of which mostly entered the Academy between the ages of 14 and 21. And I make no hesitation in the assertion that there was no failure in the undertaking of any military operation or expedition during the war resulting from a want of education in the graduate."—Testimony of J. K. F. Mansfield, Inspector-General, U. S. A., before the commission appointed in 1860 to examine and report upon the U. S. M. A.

but five were conferred for distinguished services upon the field of battle. In a large number of cases one brevet was awarded to cover several acts near together in point of time, any one of which would have earned it, such as: "Bvt. ———, September 23, 1846, for gallant and meritorious conduct in the several conflicts at Monterey, Mexico," or "Bvt. ———, August 20, 1847, for gallant and meritorious conduct in the battles of Contreras and Churubusco, Mexico."

Each brevet is credited to the "regiment or corps" to which the officer belonged and with which he was serving when he performed the service for which it was awarded.

Regiment or corps.	Graduates.	Killed.	Wounded.	Brevets.
First Dragoons	31	3	1	19
Second Dragoons	25	2	2	18
Mounted Rifles	17	0	5	22
Total cavalry	73	5	8	59
First Artillery	34	4	6	34
Second Artillery	37	2	5	41
Third Artillery	43	4	2	34
Fourth Artillery	39	2	3	27
Total	153	12	16	136
First Infantry	18	2	1	7
Second Infantry	26	4	9	21
Third Infantry	31	5	2	28
Fourth Infantry	24	4	3	26
Fifth Infantry	23	7	7	16
Sixth Infantry	16	2	5	20
Seventh Infantry	25	1	7	21
Eighth Infantry	26	4	15	27
Total	189	29	49	166
Engineer Corps	15	0	9	24
Topographical Engineers	22	2	7	23
Ordnance Department	16	0	3	18
Adjutant-General's Department	11	0	0	8
Quartermaster's Department	29	1	0	[a]12
Paymaster's Department	8	0	0	2
Subsistence Department	4	0	0	4
Total	105	3	19	91

[a] Seven of these brevets were for services on the battlefield.

List of officers commanding Volunteers in the war with Mexico who are graduates of the U. S. Military Academy.

[Thirtieth Congress, first session, Executive Document No. 8, Table G; Congressional Document No. 515, pp. 653–654.]

Name.	Rank.	Graduated.	Remarks.
W. R. McKee	Colonel	1828	Killed while leading his regiment in a charge at Buena Vista.
Jefferson Davis	do	1828	Highly distinguished at Monterey and Buena Vista—severely wounded at the latter battle.
Alex. M. Mitchell	do	1835	Highly distinguished at Monterey, where he was severely wounded.
Samuel R. Curtiss	do	1832	
L. G. DeRussy	do	1814	Showed great skill in extricating his command from being captured by the Mexicans when wrecked below Tampico, with the loss of most of their arms.
J. F. Hamtramck	do	1819	
Humphrey Marshall	do	1832	Marched with General Wool's command from San Antonio de Bexar, in Texas, to Saltillo, and was highly distinguished at the battle of Buena Vista.
W. B. Burnett	do	1832	Commanded his regiment at the siege of Vera Cruz and battle of Cerro Gordo.
Albert S. Johnson	do	1826	Distinguished in the staff of General Henderson at Monterey.
Henry Clay, jr	Lieutenant-colonel.	1831	Killed in charge of his regiment at Buena Vista.
Thomas B. Randolph	do	1812	Served with distinction in the war of 1812.
Harry S. Burton	do	1830	
Jason Rogers	do	1821	Raised a regiment and went to the succor of General Taylor before receiving the news of the battle of Palo Alto.
Chas. F. Ruff	do	1828	Went with the expedition to Santa Fe.
William Irwin	do	1830	Highly distinguished in the defeat of General Urrea.
Jones M. Withers	do	1835	
James Allen	do	1824	
Phillip St. George Cook	do	1827	
Carry H. Fry	Major	1834	Highly distinguished at Buena Vista, where he commanded his regiment after the fall of Colonel McKee and Lieutenant-Colonel Clay.
James H. Hardie	do	1843	
Jubal A. Early	do	1837	
Goode Bryan	do	1834	
Meriwether L. Clark	do	1830	Commanded the artillery with great distinction at Sacramento, etc.
Benjamin W. Brice	do	1829	
George H. Ringgold	do	1833	
M. C. M. Hammond	do	1836	
John E. Brackett	Captain	1832	
Henry M. Naglee	do	1835	
M. R. Stevenson	do	1846	
Franklin Saunders	do	1837	
A. G. Blanchard	do	1826	Highly distinguished in command of the Louisiana Volunteers at Monterey; assisted in the siege of Vera Cruz.
G. S. Rousseau	do	1828	
Hender K. Yaukum	do	1832	
M. A. Hagues	do	1838	
Thomas Worthington	Adjutant	1827	
W. E. Aisquith	Sergeant	1827	

Military services of graduates U. S. Military Academy.

[Report of Board of Visitors, 1848.]

Total number of graduates, 1802–1847	1,365
Killed in the war with England	10
Killed in Florida war	12
Killed in Mexican war	40
Graduates who have offered their services (not accepted) in Mexican war	23
Graduates brevetted for gallantry or distinguished services, exclusive of those of Buena Vista and the battles from Veracruz to Mexico	81
Graduates in the volunteer service during the Mexican war	43
Graduates who have held high rank in the militia	73

SERVICE OF GRADUATES IN THE CIVIL WAR.

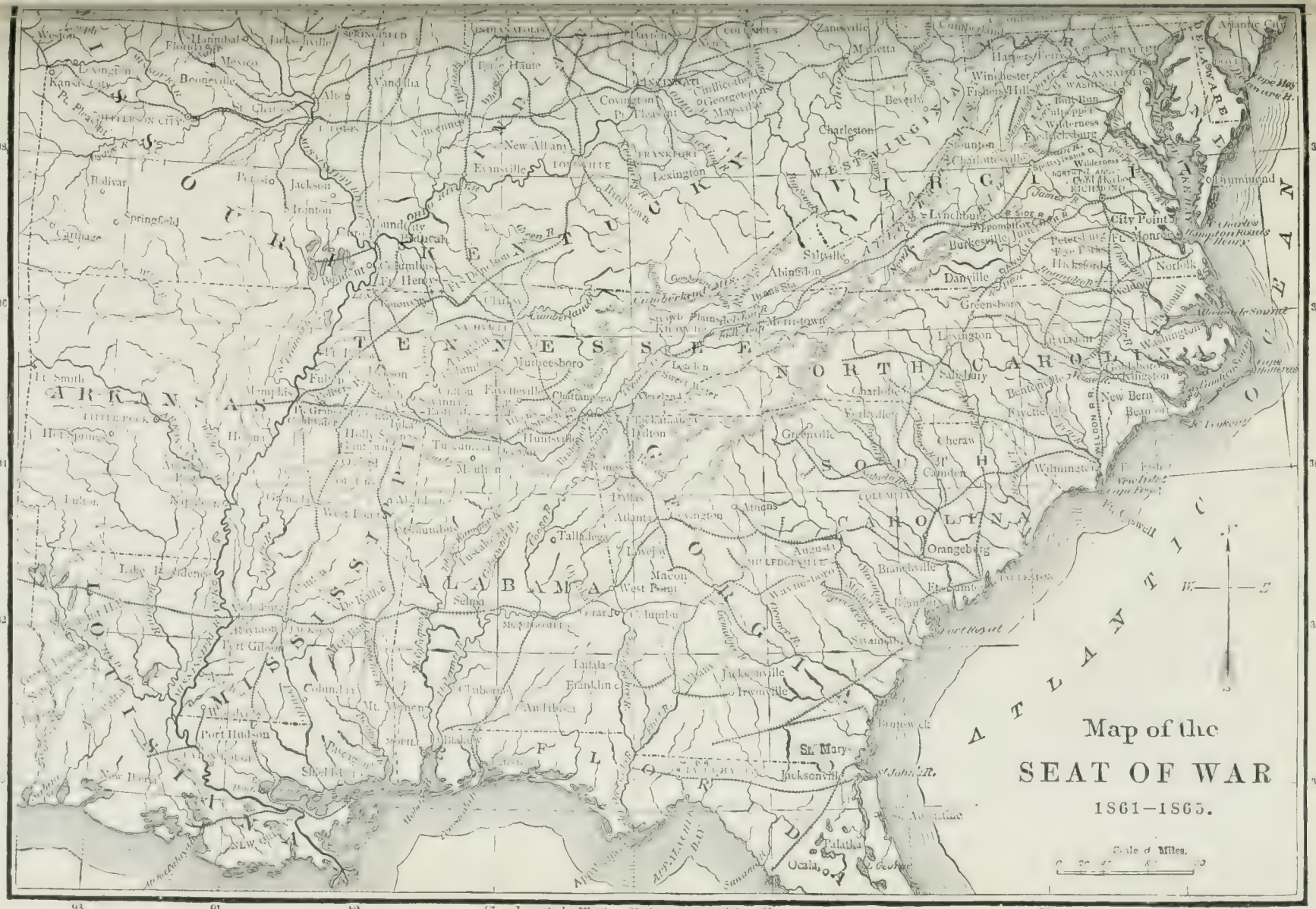
By Major W. E. BIRKHIMER,
Artillery Corps, U. S. Military Academy, 1870.

INTRODUCTORY REMARKS.

INFANTRY PRIVATE CAMPAIGN DRESS, CIVIL WAR, 1861-1865.

WHEN the American civil war broke out in 1861, fifty-nine years after the founding of the Military Academy, no graduate of that institution had ever served except by virtue of brevet rank as a general officer in the line of the U. S. Army. Mr. Jefferson Davis alone of its graduates had been appointed to the full grade of brigadier-general therein, which, however, he declined.

The circumstance did not indicate want of faith in the value of military education to the soldier. Evidence of this everywhere appeared; the Academy had grown constantly in public favor; all the generals who commanded during the Mexican war, several of whom then were appointed from civil life, cheerfully bore testimony to the great obligations they were under to their educated subordinates. It was seen that those fitted for future command were coming to the front in the ranks of the latter. An opportunity soon was offered of giving practical expression to this appreciation. In 1855 the line of the Army was increased one-fifth. Of the 16 field officers thus newly provided for, 15 were graduates of West Point. While, therefore, down to the beginning of 1861 no graduates had attained the grade of general officers in the line of the Army, they were in a position to step forward at once whenever those who so long had filled those stations should vacate them.


Map of the
SEAT OF WAR
1861—1865.
Scale of Miles.
Longitude West 85 from Greenwich.
93
91
89
87
83
81
79
77
38
36
34
32
30
ATLANTIC OCEAN
MISSISSIPPI
ALABAMA
GEORGIA
FLORIDA
TENNESSEE
KENTUCKY
VIRGINIA
NORTH CAROLINA
SOUTH CAROLINA
ARKANSAS
MISSOURI
Cincinnati
Louisville
Nashville
Memphis
Atlanta
Richmond
Charleston
Savannah
Jacksonville
Mobile
New Orleans
Vicksburg
Port Hudson
Port Gibson
Corinth
Chattanooga
Knoxville
Lexington
Frankfort
Evansville
Cairo
Columbus
Bowling Green
Fort Donelson
Fort Henry
Island No. 10
Pittsburg Landing
Shiloh
Murfreesboro
Huntsville
Tullahoma
Fredericksburg
Petersburg
Norfolk
Wilmington
Raleigh
Goldsboro
Newbern
Beaufort
Fort Fisher
Cape Hatteras
Cape Lookout
Cape Fear R.
Pamlico Sound
Albemarle Sound
Roanoke I.
Hampton Roads
Fortress Monroe
Yorktown
Gloucester Point
City Point
Harper's Ferry
Winchester
Manassas Junction
Bull Run
Culpepper
Wilderness
Fredericksburg
Gordonsville
Charlottesville
Staunton
Lynchburg
Abingdon
Saltville
Bristol
Danville
Greensboro
Salisbury
Charlotte
Greenville
Spartanburg
Columbia
Camden
Orangeburg
Charleston
Augusta
Macon
Milledgeville
Savannah
Brunswick
Fernandina
St. Mary's
Jacksonville
Tallahassee
Apalachicola
Pensacola
Mobile Bay
Appalachicola Bay
Tampa Bay
Ocala
Palatka
St. Augustine
Key West
Gulf of Mexico
Atlantic Ocean
Delaware
Maryland
Pennsylvania
Ohio
Indiana
Illinois
Missouri
Arkansas
Kansas
Mississippi
Alabama
Georgia
Florida
Tennessee
Kentucky
Virginia
North Carolina
South Carolina
Cumberland R.
Tennessee R.
Ohio R.
Mississippi R.
Red R.
Arkansas R.
Missouri R.
Kansas R.
Platte R.
Potomac R.
James R.
Roanoke R.
Pedee R.
Santee R.
Savannah R.
Ogeechee R.
Altamaha R.
St. John's R.
Chattahoochee R.
Flint R.
Apalachicola R.
Alabama R.
Tombigbee R.
Pearl R.
Yazoo R.
Big Black R.
Tallahatchie R.
Coosa R.
Tallapoosa R.
Tuscumbia R.
Cumberland Mts.
Blue Ridge
Alleghany Mts.
Smoky Mts.
Black Mts.
Iron Mts.
Ozark Mts.
Wichita Mts.
Rocky Mts.
Blue Mts.
Cascade Mts.
Sierra Nevada
Great Salt Lake
Utah
Nevada
Colorado
Arizona
New Mexico
Texas
Indian Territory
Nebraska
Dakota
Minnesota
Iowa
Wisconsin
Michigan
Lake Michigan
Lake Superior
Lake Huron
Lake Erie
Lake Ontario
Lake Pontchartrain
Lake Borgne
Lake Okeechobee
Lake George
Lake Monroe
Lake Harney
Lake Jessup
Lake Apopka
Lake Weir
Lake Eustis
Lake Griffin
Lake Dora
Lake Beresford
Lake Winnebago
Lake Poinsett
Lake Kissimmee
Lake Tohopekaliga
Lake Hamilton
Lake Alfred
Lake Parker
Lake Hancock
Lake Thonotosassa
Lake Tarpon
Lake Istokpoga
Lake Placid
Lake Jackson
Lake Miccosukee
Lake Iamonia
Lake Seminole
Lake Okefenokee
Lake Drummond
Lake Mattamuskeet
Lake Phelps
Lake Scuppernong
Lake Waccamaw
Lake Marion
Lake Moultrie
Lake Wateree
Lake Norman
Lake Tillery
Lake Gaston
Lake Chesdin
Lake Prince
Lake Meade
Lake Mohave
Lake Havasu
Lake Pyramid
Lake Tahoe
Lake Winnemucca
Lake Abert
Lake Malheur
Lake Klamath
Lake Shasta
Lake Tulare
Lake Buena Vista
Lake Elsinore
Lake Chemung
Lake Cayuga
Lake Seneca
Lake Oneida
Lake Champlain
Lake Memphremagog
Lake Winnipeg
Lake Winnipegosis
Lake Manitoba
Lake Athabasca
Lake Superior
Lake Michigan
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Lake Seneca
Lake Oneida
Lake Champlain
Lake Memphremagog
Lake Winnipeg
Lake Winnipegosis
Lake Manitoba
Lake Athabasca

The truth is that the benefits of the Academy upon the military establishment came soon to be acknowledged not only in the Army, but throughout the country, and especially in the Congress of the United States. This commenced to be manifested in the proceedings of Congress soon after the war of 1812, and simply reflected the public conviction that education was essential to the best type of soldier, and although assaults were made from time to time in the national legislature upon the institution, the latter truly may be said to have gathered strength with the growth of the nation. During the forty years subsequent to the reorganization of the Army in 1821 most of the officers appointed to commissions were graduates. If they had not risen to highest command they were the trusted advisers of those who had. Quietly, but certainly, through the six decades from its establishment down to 1861, and with augmenting power, the vivifying and strengthening influence of the scientific military education imparted at the Academy had been doing its salutary work of building an army and a public sentiment upon an intelligent basis, strong in that from the foundation stone it was constructed upon correct military principles.

During this time the careers of the graduates, both in the Army and out of it, gave their alma mater great prestige. It was, therefore, not a matter of surprise that at the beginning of September, 1861, within a few months of the commencement of the civil war, 6 of the 11 generals in the Regular Army were graduates,[a] and of the other 5, mostly superannuated, it is no disparagement to say that they were wholly incapacitated from age and infirmities to cope with demands of the gigantic struggle now precipitated, and, with the sole exception of the gallant first commander of the Second Army Corps, proved wholly unequal to the duties of their stations in the field. The principle was soon adopted of making the appointment of general officer in the Regular Army a reward for conspicuous success in the exercise of a general's command in operations against the enemy. At the conclusion of the war 16 of the 17 regular general officers of the line were graduates,[b] the 16 including all the more prominent commanders.

[a] Army Register, p. 3.

[b] Army Register, 1866, p. 3.

There is but one desideratum in a military commander and that is fitness. This fitness is due to many causes. Many who bear commissions can never possess it. It will be found to consist of numerous elements. One of these is a correct understanding of the principles upon which military operations should be conducted. The foundation for this is attempted to be given at schools such as the Military Academy. Another, the very central idea of such schools, is discipline, its true nature and necessity. Another is the knowledge, gathered from experience, of the minutia of service and the application thereof to soldiers singly or in mass. Another is fortitude and courage. This is only a partial list, but all these elements are necessary.

It needs no extended demonstration to show what an advantage the West Point education, if properly utilized, is to those who enter at the foot of a profession where, to attain success, the before-mentioned elements are fundamental On the other hand, the circumstance of having received this education places them under peculiarly heavy obligations. The candidate for military honors from that institution can not relax his exertions at the first step of the ladder, or he will fail, as unfortunately frequently has been the case, thus bringing reproach not only upon himself, but also upon the academy that gave him so many preliminary advantages, and lending a color to the assertion that such education is of little benefit.

Besides, the enumerated and other necessary elements may be acquired by one who has not enjoyed such early educational facilities, but who, cultivating assiduously the talents that nature has given him and strenuously utilizing the opportunities that experience places in his way, forces himself to the front by dint of sheer worth alone and through success becomes recognized as one who can be safely intrusted with important commands. The civil war furnished numerous instances of this kind. Such men should, and they always will, rise above those who can do no more than boast of early superior advantages, but whose lives present them to the world as lacking both the character and earnestness of

purpose even to endeavor adequately to make return to the Government for the favors they have enjoyed.

Of the living graduates when the war commenced, including the classes (two) of 1861, 89 per cent served in either the Union or Confederate army. The 11 per cent remaining seem to have been deterred principally by physical infirmities, some by business relations, and a small number from an apparent desire to remain neutral upon the political issue mainly involved.

Of the 89 per cent who served actively, over 73 per cent—nearly three-fourths—were in the Union Army.

Of the graduates in civil life 55 per cent now reentered the Army on one side or the other, the actual number on each side entering from this class being almost identically the same.

During the war 1 graduate rose to the grade of lieutenant-general, specially revived for him; 6 to that of major-general, and 11 to brigadiers in the Regular Army; 66 to major-general, and 112 to brigadier-general of volunteers, or more than one-third of those engaged rose to the grade of general officer. Nine received the thanks of Congress for conspicuously gallant and important service in battle.

It has been the experience of the United States in all wars that at the commencement political expediency powerfully influenced appointments to military office. The great crisis of 1861 furnished no exception. Of the 5 major-generals of volunteers appointed during that year, 4 were prominent politicians without recognized special military capacity; but, as if to balance the scale, of the brigadier-generals of volunteers appointed about the same time, three-fourths were graduates, a large proportion of these entering from civil life. It apparently was desired and expected that the experience of the Mexican war would be repeated—that politicians would be put in at the head of the volunteer forces to gain whatever of credit flowed from that source, while, to furnish that military experience and knowledge which these political generals notoriously lacked, competent and trusted subordinates were placed close around and under them.

As the war progressed the idea of subordinating military

measures to political considerations was modified, but could not wholly be ignored. Compliance with them furnished in time an awaiting-order list of which President Lincoln remarked that the generals without commands, by whom nobody wanted to be commanded, constituted one of the most onerous burdens of his sorely tried life.

Before the expiration of 1861, however, the true nature of the war became apparent to the Government. Strenuous efforts then were made to discover and place in the higher and more responsible commands those officers who by their antecedents gave promise of being most competent. While high-ranking political generals were not ignored, they were given commands where, it was hoped, their anticipated errors would do the least harm. By the 1st of January, 1863, two-thirds of the major-generals—the highest grade at that time—in the vast army called into the service of the Union were graduates, which proportion was fairly well maintained throughout the war. Under this policy, which was a complete "about face" from the original before commented upon, the command of large bodies of troops was, with few exceptions, given into the hands of experienced and trained soldiers. The position of general officer in the Regular Army was made a reward for command successfully exercised against the enemy.

At the beginning of the last year of the war (1865) the names of graduates alone appeared in the list of generals of the line of the Regular Army.[a] It is true that the military capacity of some of these had been anticipated, they having been appointed for what they were expected to do; the rest had been appointed for great fitness actually shown while in command and for success achieved; and it furnishes a curious and instructive lesson to examine the names in these two classes and contemplate what each class accomplished toward the successful prosecution of the war.

It would be comparatively easy perhaps to account for the services of the nearly 300 graduates who during the civil war rose to the grade of general officer in the Union Army.

What were the other 500 or so doing? In the first place be it remembered that one in five of the whole number engaged

[a] Army Register January 1, 1865.

in all grades laid down his life as an earnest of devotion to the cause he maintained; and secondly, one-third of the whole number was wounded more or less severely. Thus in the most highly honorable manner the full extent of the possible field service was impaired. Those who did not secure the coveted star on the shoulder were mainly engaged in the administrative bureaus and in the staff, where their services were indispensable to the maintenance of efficiency in the troops. Moreover, in a war on that scale, when every resource of government was put in requisition, there was everywhere a demand for officers who had a knowledge of ordinary military affairs, and who in addition could be useful in conducting various new departments which the diversity and immensity of military operations brought into existence. Sick or disabled officers were, until recovery, temporarily placed upon any duty that their physical condition would justify. This was the practice in all grades, but necessarily more so in the lower, where, with the greater numbers, casualties were the more numerous.

The plan worked admirably. It enabled these officers, skilled in routine military affairs, especially office work, to serve the Government while they were convalescing, almost if not quite as acceptably as if commanding their troops in presence of the enemy. Not only was this important at the time, but having regard to individual rights and not only present but future governmental pecuniary responsibility, nothing could exceed the importance of the record work thus done. Graduates of experience, convalescents or otherwise, were mainly relied upon to systematize this class of labor; and because it had three times as many graduates at its disposal, it followed that the National Government was much better off in this respect than the Confederacy.

Then there was the class of graduates who, due to various causes, occupied subordinate positions in the field, either in staff duties or commanding troops. To take in the whole military situation we must glance not only toward the top, but down the line. There was not room for all in the upper grades, consequently many were consigned to the lower. That

they served there was nothing to their discredit. Many graduated after the war commenced, when the upper grades were filled, not always with good commanders to be sure, but having been placed on the lists it was difficult to get rid of the inefficient; consequently it often happened that abler and better soldiers were compelled to remain in the lower ranks. Here they constituted a substantial and well-recognized element of strength by reason of professional accomplishments, their imbued discipline, and knowledge of military details.

It was the fortune of this class to labor in a field of duty where the rewards, if not conspicuous before the country, were yet those dear to the heart of every true soldier; a consciousness of service faithfully rendered, and of return made to the full extent of ability and opportunity for that education which the wisdom and beneficence of the Government had given them at their beloved alma mater. It is a proud fact that, in the roll of honor of the glorious dead, of the wounded, and of brevets for gallant conduct on the battlefield, this class stands preeminent.

Turning now to the Confederate army, it is rather curious to observe, considering how closely sectional lines were drawn in those days, that of the 296 graduates who entered that army over 13 per cent were born in and over 11 per cent were appointed Cadets from the free States, a fact which gallantry has attributed, and no doubt justly, to the gentler sex. Over 50 per cent became general officers. The rest were employed, as were corresponding subordinate grades in the Union Army, just remarked upon, and they there rendered, to the extent that their numbers permitted, and the internal affairs of their government made possible, equally acceptable military service. Only 14 per cent, or one in seven, of the 296 referred to, were over 50 years of age. With two exceptions, however, those who rose to the full rank of general were over 50, and to this older class of generals belonged all those in whom greatest confidence habitually was reposed and who have left in history reputations as great commanders.

After the first few weeks of the civil war it was recognized by the Confederacy as a struggle to the death. If success

were to be had, it was to be only through the triumph of their arms.

The arts of diplomacy, from which so much at first had been hoped, were soon given their true and secondary place. Promptly the principle was acted upon. Military necessity became at once supreme. Every resource at command of government, or which could be appropriated, was utilized to the utmost to the accomplishment of the one supreme end to be attained. A powerful instrumentality was a properly organized military establishment. It had to be created anew, though some of the more important elements were known, tried, and at hand. Here then was a field where, undeterred by prejudice and errors grown hoary and sanctified by age, an army could be brought into existence with the rank of officers appropriate to the command they were to exercise. At that period, in the councils of the Union, the full grade of lieutenant-general seemed to be regarded as too sacred for any of our officers, because General Washington had held it. The Confederacy was not bound by memories of this character, but went straight to the creation and filling of grades from general down, with an eye single to military efficiency. Graduates alone were appointed to the full grade of general. Of the West Pointers in the Confederate service, 8 were made full generals, 15 lieutenant-generals, 40 major-generals, 88 brigadier-generals. Two only of the Confederate lieutenant-generals were not graduates. The commands appropriate to these grades were, respectively, army, corps, division, brigade.

Above all stood the Confederate president, Jefferson Davis, as constitutional commander in chief. Nor with him was this an empty military power. He believed that it wisely had been intrusted to his discretion, and he exercised it accordingly. Two ideas seem to have dominated him in this regard: First, that he was entirely competent to pass upon any military exigency when it arose; second, that superior knowledge acquired in the exalted station from which he viewed the whole field of contest rendered it peculiarly appropriate that he should interpose at will his supreme military authority. That he should entertain these sentiments can not be matter of surprise when

his character and previous public service are considered. His was a nature that could not brook a superior, and barely tolerated an equal; and his ability enabled him successfully to practice this rôle. While in the Congress of the United States, both House and Senate, he ever was treated with respect approaching deference by his associates. After the Mexican war, where a brief but brilliant service, joined to political considerations, secured him the tender of a brigadier-generalcy in the Regular Army, his influence as Secretary of War and as Senator became, in all military matters, very great—indeed, in a measure, determining almost without question the military policy of the nation.

When, therefore, he left the Senate, soon to become president of the revolted States, it was not to be wondered at, however much his subordinates might regret the circumstance, that he could not leave unused, when occasion seemed to render it expedient, that military authority with which the constitution of the struggling Confederacy had invested him. Indeed, the existence of the power in his hands was a necessity: the great problem for him to solve, each step big with fate, was when, where, and how to use it wisely.

Careful study of the events of this momentous period leaves no doubt in the mind that the result, upon the whole, of his interference and exercise of military authority was greatly prejudicial to the cause he had espoused.

Under these circumstances good organization was the more necessary to the Confederate army. The one aim was successfully to direct the military resources and energies of the Confederacy. A powerful mean to that end was an appropriate distribution of command from top to bottom. In this way the military power of the Confederacy, with a devotion, energy, and singleness of purpose unsurpassed, was directed toward the attainment of the sole object of its existence—the defeat of the armies of the Union. It was an unequal contest; but proper military organization enabled the Confederacy to make the most of its resources.

The military policy here adopted for selection of commanders is worthy the careful consideration of those to whom, in any government, the supreme appointing power

may be intrusted. It illustrates, in the clearest instance known to recent times, choice of military leaders on the principle of fitness alone. As a condition precedent to an officer being intrusted with important military command it was necessary either that evidence be forthcoming from which his qualifications fairly might be inferred, or that he demonstrate his fitness in operations against the enemy. As on the side of the Union, the appointment of mere politicians to command soldiers could not at first be avoided, but they collapsed at the first blow, and thereafter little consideration was given them as commanders. Thus, the Confederate armies were organized, led, and fought. Failure was due solely to the fact that, happily, the resources of the National Government were too great for those of the rebellion. In the words of the great soldier who led the conquering hosts against the final citadel of Confederate power, let us "hope for perpetual peace and harmony with that enemy, whose manhood, however mistaken the cause, drew forth such herculean deeds of valor." Nor was the invocation uttered in vain.

OPERATIONS, 1861.

For some months after the first hostile shot was fired, the contestants to the civil war, the National and the so-called Confederate government were maneuvering for position, each hoping, with gradually diminishing confidence, that the bitter cup might not be pressed to the lips of an anxious and reluctant people, who dimly appreciated what was meant by this dread trial of arms, yet who felt instinctively that the question at issue was one which could not be compromised, and that the sword alone could settle.

The area of the Confederacy was 733,144 square miles; the interior boundary line, 7,031; coast line, 3,523; shore line, 25,414 miles.[a] The white population was 8,289,953; blacks, about 4,000,000.

The population of the States that remained loyal to the Union was about 20,000,000. The war soon assumed the

[a] "Civil War in America" Draper, vol. 2, p. 138; vol. 1, p. 508.

aspect of this area of 733,144 square miles, with its population, roundly, of 12,000,000, being reduced to the attitude of a beleaguered vast fortress, shut off from supplies by sea, except as occasionally relieved by blockade runners, assailed at the most vital points on the interior line by the armies which the patriotism and resources of 20,000,000 people could muster.

Under these conditions the total of fighting powers which each side could and did put into the field to serve its own necessary purpose were by no means unequal. The Confederates were concentrated and chose their positions to await assault. In three notable instances, namely, Bragg's invasion of Kentucky in 1862 and in Lee's movements north of the Potomac in 1862 and 1863, terminating in the battles of Perryville, Antietam, and Gettysburg, respectively, the besieged attempted sallies for moral effect, to relieve the ravages about their own firesides, and to carry the war into the enemy's country. In each instance the result was disastrous, teaching the lesson that the Confederacy, while well-nigh invincible on its own ground, was too weak successfully to attempt to carry its armies beyond its own territorial limits. This conclusion was disagreeable to the Confederacy. It was natural for the Confederate authorities to avoid coming to it as long as possible; but, the necessity having been demonstrated, it remained only for their armies to settle down again in selected and carefully prepared lines of defense and await the adversary's attack. On the other hand, it was necessary for the National Government to pursue constantly a campaign of invasion. Its armies had to seek and overcome those of the adversary within the territorial limits which the latter had appropriated, amidst a bitterly hostile population, in positions of the enemy's selection, strengthened by every resource known to military art.

While, therefore, it is true that the loyal population greatly exceeded the other, that the warlike resources of the National Government were immensely greater than those of its adversary, that it had the prestige of permanent establishment among the nations of the world which the other lacked, still

the task which its military power on land and sea had to perform was greater, compared with that of its antagonist, in degree duly proportioned to these enumerated advantages. Fortunately patriotism and national power were sufficient for national preservation. Both were tried to the utmost limit.

We have the assurance of one of the foremost statesmen of those trying times that in the fall of 1862 such was the feeling of despair throughout the North at military reverses and sacrifice of lives of the bravest of the land, such the misery brought to every household, that had the cause been any other than the preservation of the Union, any Administration which would not have secured peace by compromise would have been hurled from power, and one of the great soldiers who led the Union armies finally to victory has expressed the opinion that had the Confederate commanders been able to prolong the war another year the loyal States, worn out by the struggle, might have consented to separation. Great, therefore, as were the military resources of the National Government in the patriotism of the people and in warlike implements and materials of all necessary kinds, they were none too great for the task imposed.

The military conflicts during 1861 were confined mostly to the harbors of Charleston, S. C.; Pensacola, Fla.; irruptions on the Atlantic coast, to Virginia and Missouri. Those at the harbors mentioned were to determine the question of occupancy of the splendid local forts which the Government, pursuant to its early adopted system of seacoast defense, had constructed for the protection of the adjacent bays and cities. The conflicts in Virginia and Missouri were the results of the first movements in which the opposing forces in earnest essayed each to test its own and the adversary's metal in a trial at arms. Two of these rose to the dignity of battles and, by the stubbornness with which they were contested and the casualties inflicted, presaged the strenuous character of the struggle that now commenced.

On the night of December 26, 1860, acting under discretionary orders suited to the emergency which he now deemed to have arisen, Maj. Robert Anderson, First U. S. Artillery, commanding in the harbor of Charleston, S. C., moved his

command from Fort Moultrie to Fort Sumter.[a] This being sanctioned by the President was regarded by the secessionists, under the conditions actually existing, as an overt act of war. The old forts around the harbor were occupied by hostile troops, new works bearing on Fort Sumter were constructed, the steamer conveying reenforcements and supplies to its garrison was fired upon by the enemy January 7, the fort itself was attacked on the 12th and surrendered on the 13th of April, 1861, after a bombardment of thirty-four hours. As a purely military affair the incident of Fort Sumter was of little importance. But its effect upon the nation could not be overestimated. The people were electrified. They sprang to arms with a spontaneity not witnessed since the days of Lexington. Although those in authority, the chief officials especially, as well as the cautious and prudent private citizen might hope still for peace, it was felt by all now to be almost impossible, and preparations for war at once earnestly began.

The casualties inside Fort Sumter were few. Its defense was not of that desperate nature which characterized some subsequent incidents of the war. For this reason criticism has been directed at the commander for vacillation and want of staying qualities. But these reflections seem undeserved. He acted well under the circumstances. Indecision had, down to that time, characterized all branches of the National Government. In consequence of this he had been left unsupported, the enemy gathering in constantly greater force around him, while he was in no way succored. When, therefore, "the quarters were entirely burned, the main gates destroyed by fire, the gorge walls seriously impaired, the magazine surrounded by flames and its door closed from the effects of heat, four barrels and three cartridges of powder only being available, and no provisions remaining but pork," he felt justified in putting an end, by favorable capitulation, to the contest.

Of the graduates engaged in this defense, Major Anderson was soon appointed brigadier-general, U. S. Army; Capts. John G. Foster and Abner Doubleday rose to the grade of

[a] The Civil War in America, Draper, vol. 1, pp. 542-547.

major-general, Capt. Truman Seymour to brigadier-general, and Second Lieut. Norman J. Hall to colonel of volunteers. First Lieut. George W. Snyder and Second Lieut. Richard K. Meade both died soon afterwards, the latter having first joined the Confederate army, where he attained the rank of major of engineers.

On the Confederate side the graduates were represented in about equal numbers. Brig. Gen. P. G. T. Beauregard commanded the provisional forces. His services here gave him great eclat, and, August 31 following, he was raised to the full rank of general. Capt. Stephen D. Lee, aid-de-camp, rose to lieutenant-general January 23, 1864, and succeeded to the command of Hood's Corps when Gen. John B. Hood relieved Gen. Joseph E. Johnston, July 27, 1864, of command of the Army of Tennessee before Atlanta. Maj. David R. Jones, assistant adjutant-general, attained the rank of major-general, dying January 19, 1863. Capt. J. H. Hallonquist was subsequently lieutenant-colonel of artillery. All these officers had resigned from the U. S. Army. Capt. W. R. Calhoun had come into service from civil life. He rose to the grade of colonel of artillery in the regular service of the Confederacy, and was killed in a duel with a subordinate in September, 1862.

The circumstances attending the bombardment and surrender of Fort Sumter brought all the military actors engaged into favorable prominence. Each Government approved the conduct of its own officers. The disposition of each was to mete out promotions and military appointments to a degree greatly in excess of what the real professional merit of services performed could be held to justify.

The conduct of First Lieut. Adam J. Slemmer at the mouth of Pensacola Harbor, Fla., was similar to that of Major Anderson at Charleston. The First Artillery at that time were stationed in the South. On January 10, 1861, Lieutenant Slemmer, accompanied by Second Lieut. J. H. Gilman and Company G, First Artillery, with assistance of the Navy, abandoned Fort Barrancas, Fla., and moved, with all impedimenta that could be so hastily transported, to Fort Pickens, a work of great strength, and which, controlling

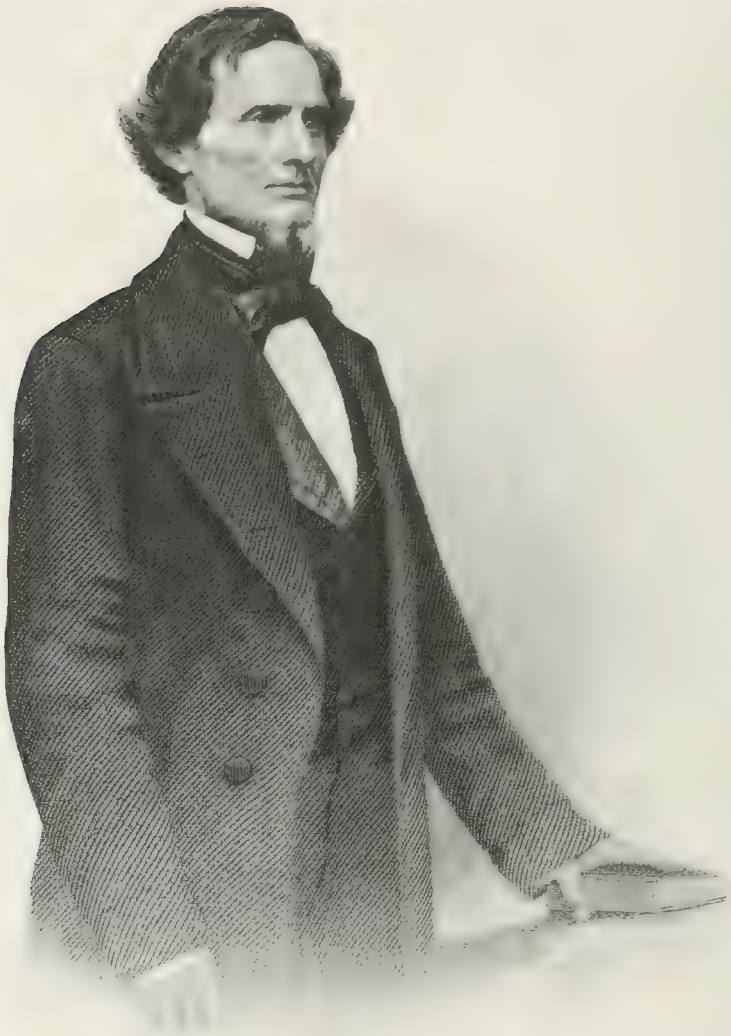
the entrance to the bay, completely dominated that important harbor, deemed the best on the Gulf coast. Although beset by difficulties, including a threatening enemy vastly superior in numbers, Slemmer's little garrison held bravely on until reenforced, February 6, by a company under Capt. Israel Vogdes, and on April 17 by five companies under Col. Harvey Brown, U. S. Army. It was in securing the reenforcement and supplying of Fort Pickens that Capt. Montgomery C. Meigs rendered the specially valuable service which led to his appointment, May 14, to colonel, and the next day, May 15, 1861, to the responsible position of Quartermaster-General, U. S. Army.

Later in the year, October 9, the Confederates made a night attack on the United States forces near Fort Pickens, with some success; but the fort itself never was captured, a circumstance leading within twelve months to the abandonment by the enemy of all the surrounding district, possession of which they had rightly deemed of great importance because of the inclosed spacious harbor with easy entrance.

Of the graduates on the Union side who were prominent in these transactions, Lieutenant Slemmer was appointed, as he deserved, major Sixteenth Infantry, and later, together with Colonel Brown and Captain Vogdes, brigadier-general of Volunteers; while Lieutenant Gilman was given one of the new captaincies of Regulars. Among the Confederate commanders the graduates were Col. William H. Chase, subsequently major-general of Florida State troops; Braxton Bragg, promoted general April 12, 1862; Richard H. Anderson, lieutenant-general, June 1, 1864; Samuel Jones, major-general, and Thomas M. Jones, brigadier-general, 1862. The character of these officers indicated the importance which the Confederate authorities attached to the retention of Pensacola Harbor, but Fort Pickens holding it by the throat, it ceased to be of value to the Confederacy.

The incidents at Forts Sumter and Pickens were mere outpost affairs of the war about to open. Their importance is due to the fact that they inaugurated the struggle.

On June 10, 1861, there fell at Big Bethel, Va., in an ill-judged combat, First Lieut. John T. Greble, Second Artillery,



Jefferson Davis,

U. S. M. A., 1828.

the first graduate and regular officer to be killed during the civil war. His sacrifice was part of the price that had to be paid in order that the raw commanders now entering service should gain the necessary experience to make them reasonably prudent in attacking an enemy in position.

The State of Kentucky seeking to occupy for the moment the attitude of neutral ground, Maryland and the District of Columbia having been placed by the prompt action of the National authorities behind the line of loyal bayonets, the armed opponents commenced to marshal themselves mainly in the important States of Virginia and Missouri.

The removal of the Confederate seat of government to Richmond plainly indicated that the territory between that city and the National capital would be a principal theater of conflict. It was felt by the Administration that the city of Washington must be protected at all hazards; not only would national military prestige suffer by its capture, but, in the then condition of foreign relations, such an event it was appreciated might prove fatal to the Union cause. The nations of Europe had so often seen the occupation of the opposing seat of government followed by the submission of the vanquished, that it had become a military maxim to press forward to a peace dictated in the enemy's capital; and it was earnestly felt that, with the ill-will so widely manifested across the Atlantic, the excuse to interfere because of this contingency must at any sacrifice be obviated. Nor was there mutuality in the relative importance of the two capitals: The Confederates might recover from the loss of theirs; it was doubtful if the National Government at that period could have done so. Hence from the first there was always the deepest solicitude felt that, whatever else happened, the capital of the Union should be rendered secure. Until nearly the close of the war this consideration powerfully influenced the movements of the Union armies in that theater of operations.

Early in July the Confederate forces menacing Washington were concentrated at Manassas Junction, Va., about 30 miles in advance of that city, where a branch railroad to the Shenandoah Valley joins that running from Richmond to

the national capital. This force was connected on the left with another at Winchester in the Shenandoah Valley. Other Confederates were in West Virginia; but they were too far away, with means of communication too difficult, to aid in case of conflict the main armies before mentioned. Brigadier-Generals P. G. T. Beauregard and Joseph E. Johnston, of the Confederate service, commanded at Manassas and Winchester, respectively, while Maj. Gen. Robert E. Lee, of the Virginia State troops, was conducting the western Virginia campaign.

On the night of May 23–24 the Union troops moved in three columns to the south bank of the Potomac under Brig. Gen. Joseph K. F. Mansfield, U. S. Army, commanding the Department of Washington, and intrenched in position from Alexandria to the Chain Bridge, above Georgetown.[a] On the 27th Brig. Gen. Irvin McDowell, U. S. Army, was placed in command south of the Potomac. He therefore was the antagonist of his classmate Beauregard. Maj. Gen. Robert Patterson, a veteran of the war of 1812 and of the Mexican war, confronted Johnston. Gen. George B. McClellan, U. S. Volunteers, maneuvered against Gen. Robert E. Lee's lieutenants in western Virginia.

The sentiment of the loyal States demanded decisive victory before the terms of enlistment of the volunteers expired. If possible, the contemplated assembling of the Confederate congress at Richmond was to be prevented by the capture of that city. To accomplish all this it was necessary to seek and defeat the Confederate forces. Those under Beauregard were first to be dealt with, as they lay directly athwart the route to the Confederate capital. The attempt to do this resulted in the battle of Manassas Junction, or Bull Run, July 21, 1861.

General Beauregard's army was protected by the stream of Bull Run, which, though fordable in many places, yet constituted a formidable obstacle to the advance of the Union troops, most of whom, like their adversaries, possessed nothing beyond the merest rudiments of military discipline. It consisted of the brigades of Brigadier-Generals Theophilus

[a] The Civil War in America, Draper, vol. 2, p. 112.

H. Holmes, M. L. Bonham, Richard S. Ewell, David R. Jones, James Longstreet, Colonels P. St. George Cocke, Jubal A. Early; unattached, three infantry regiments, one regiment and three squadrons of cavalry, and six light batteries. It was reinforced from Johnston's army on July 20 and 21 by the brigades of Brigadier-Generals Thomas J. Jackson, Barnard E. Bee, Edmund K. Smith, Col. F. S. Bartow; unattached, two infantry, one cavalry regiment, and five light batteries. Every officer mentioned, except Brigadier-General Bonham and Colonel Bartow, were graduates, as also were Colonels N. George Evans and George H. Steuart, who subsequently became brigadiers, Colonels Arnold Elzey and J. E. B. Stuart, afterwards major-generals, Col. A. P. Hill, afterwards lieutenant-general, and Capt. William N. Pendleton, who, having left the pulpit for the field, became brigadier-general and chief of artillery Army of Northern Virginia.[a] The combined Confederate force was about 31,340 men available on the field of battle; but of these Ewell's, Holmes's, and Longstreet's brigades, besides a few regiments, were not very actively engaged.

General McDowell had advanced a step further in organization than his opponent, having his army arranged in divisions, of which he had five. The mass of officers, from colonel down, being wholly inexperienced, it was hoped, by the organization of brigades and divisions and placing in command of them as a rule Regular Army officers or graduates, to utilize to the utmost the experience of the latter not only in the discipline of the new troops, but in the administration of important matters of returns, accounts, and supply. Drill exercises were assiduously practiced; but the power to maneuver in large masses, being based on discipline, in which the troops were very imperfect, was wholly lacking. The First Division, commanded by Brig. Gen. Daniel Tyler, embraced the First Brigade, commanded by Col. Erasmus D. Keyes; Second Brigade, Brig. Gen. Robert C. Schenck; Third Brigade, Col. William T. Sherman; Fourth Brigade, Col. Israel B. Richardson. Second Division, Col. David Hunter; First Brigade, Col. Andrew Porter; Second Brigade,

[a] Battles and Leaders of the Civil War, vol. 1, p. 145.

Col. Ambrose E. Burnside. Third Division, Col. Samuel P. Heintzelman; First Brigade, Col. William B. Franklin; Second Brigade, Col. Orlando B. Willcox; Third Brigade, Col. Oliver O. Howard. Fourth Division, Brig. Gen. Theodore Runyon; four militia and four volunteer regiments. Fifth Division, Col. Dixon S. Miles; First Brigade, Col. Louis Blenker; Second Brigade, Col. Thomas A. Davies.[a] Of these commanders all were graduates except Col. Andrew Porter of the Sixteenth Regular Infantry, and Brigadier-Generals Schenck and Runyon.

Of the other graduates present, Isaac F. Quinby, Henry W. Slocum, Henry Whiting, William R. Montgomery, and Thomas A. Davies, all had returned from civil life to colonelcies of Volunteers; Capt. Alexander McD. McCook commanded the First Ohio Volunteers, Maj. George Sykes a battalion of Regular infantry, Maj. Innis N. Palmer a squadron of Regular cavalry, while Captains Josiah H. Carlisle, Henry J. Hunt, Romeyn B. Ayres, Charles Griffin, James B. Ricketts, Richard Arnold, John C. Tidball, First Lieutenants John Edwards, Edmund Kirby, and Oliver D. Greene represented the Regular artillery on the field. Many of these officers afterwards rose to high rank. Col. William T. Sherman became one of the most distinguished officers that the war developed. Burnside commanded at one time the Army of the Potomac, while both these officers, together with Keyes, Richardson, Hunter, Heintzelman, Franklin, Howard, Slocum, McCook, Sykes, Griffin, reached the grade of major-general, and Willcox, Davies, Quinby, Palmer, Ayres, Ricketts, Arnold, Hunt became brigadiers, the latter the distinguished Chief of Artillery of the Army of the Potomac.

General McDowell's available force was about 35,000 men. About 18,000 men on each side were actively engaged.[b]

On the afternoon of July 16 McDowell moved toward the enemy from his position on the south side of the Potomac, the troops carrying three days' rations. On the afternoon of the 18th the army was concentrated in the vicinity of Centerville, 6 miles east of Manassas Junction.

The enemy guarded all fords across Bull Run, a stream

[a] Battles and Leaders of the Civil War, vol. i, p. 174. [b] Ibid. pp. 194-195.

with rugged banks, 3 miles distant. On his right, at Union Mills, was Ewell's Brigade, and joining hands thence toward the left were in succession, ascending the stream, Jones's Brigade at McLean's Ford, Longstreet's supported by Early's Brigade at Blackburn's Ford, Bonham's Brigade at Mitchell's Ford, thence up to the stone bridge Cocke's Brigade was posted; while Evans with a mixed command was guarding this bridge—the extreme left of Beauregard's line.

General Scott's orders were to turn the Confederate right and seize the line of communication with Richmond.[a] The 19th and 20th of July were employed by McDowell in examining the country toward the enemy, with the result that, because of natural obstacles presented, it was not deemed advisable to attempt the execution of this movement. While this reconnoissance was going on rations were issued to the Army. An advance of part of the First Division toward Blackburn's and Mitchell's fords on the 18th had brought on a sharp engagement, without result except that each party gave the other assurances of belligerent good will.

Meanwhile the enemy had not been idle. Eluding General Patterson, whose special duty it was to detain him, General Johnston, now a full general and therefore ranking Beauregard, had arrived at Manassas from Winchester with some of his brigades, two of which, Bee's and Bartow's, were placed in reserve between McLean's and Blackburn's fords, and Jackson's in reserve between Blackburn's and Mitchell's fords. Holmes's troops having arrived from Aquia Creek, supported Ewell at Union Mills. Thus the possession of interior lines was utilized by the Confederate commander to every advantage.

Although McDowell suspected that Johnston had joined Beauregard, he did not know it, and, after the reconnoissance mentioned, changed the original contemplated plan of attack on the enemy's right to a turning of his left, thereby maneuvering him out of his strong position behind Bull Run. By seizing the railroad leading from Manassas to Winchester it was hoped to prevent the junction of the enemy's forces. The strategy of this plan of battle was excellent. On the

[a] Johnston's Narrative, p. 43.

19th it might have proved successful; on the 21st it was based upon an erroneous supposition regarding the position of Johnston's army—a vital element. Yet had the tactics of the battlefield equaled in merit the strategy of the movement projected victory still might have rested with the National arms. The plan of attack was an entire surprise to the enemy, who himself had planned a movement by his own right against McDowell at Centerville before Patterson could join, and he was only diverted from this when he found his left, supported by Johnston's troops, in danger of being overwhelmed two hours after the first hostile contact there.

The disposition and movements of the Union forces ordered on the morning of the 21st of July were: Fifth Division, with Richardson's Brigade and considerable artillery in reserve, at Centerville; Fourth Division 6 miles in rear guarding the line of communication with the Potomac; Tyler's Division, minus Richardson, to attack the Stone Bridge at daylight by way of diversion, drawing the enemy's attention from the turning movement of Hunter's Division, followed by Heintzelman's Division, short Howard's Brigade, by way of Sudley's Ford, upon the left and rear of the enemy. When the turning movement developed, the First Division was vigorously to attack the enemy's flank. The difficulties of handling new troops and the disadvantages attendant upon lack of correct knowledge of the terrain at once became manifest. The movements of all the troops were slow beyond all calculation, and the number of miles to march involved in the turning movement was twice what was expected. The result was that the Union forces were two hours late in commencing the action, and meantime the enemy on the left had discovered the character of the attack upon him.

Evans, with the eye of a soldier, parried the feint at the Stone Bridge, immediately in his front, by leaving a few companies there, and, informing Cocke of the threatened attack on the left, posted near Sudley's Ford his remaining troops to meet it at right angles to his former position. Here Evans, joined by Bee's and Bartow's brigades, was attacked by Hunter's Division and one regiment of Heintzelman's Division. Hunter was seriously wounded, but the enemy after

two hours' fighting was driven back in great confusion, rallying at a point over a mile to the rear, under cover of Jackson's Brigade, in a strong position on an elevated plateau south of Youngs Branch of Bull Run. It was for his cool, resolute conduct at this instant that Jackson won the sobriquet of "Stonewall." Johnston and Beauregard, alarmed by the menacing character of this attack, ordered Ewell, Jones, and Longstreet to make demonstrations to their front beyond Bull Run, while, with Holmes's and Early's brigades, they moved with all speed to rectify matters on the left.

The battle was renewed upon the line held by Jackson. McDowell had at hand the brigades of Franklin, Willcox, Sherman, Porter, Palmer's squadron of Regular cavalry, and Ricketts's and Griffin's Regular batteries. Howard's Brigade, in reserve, got into action late in the afternoon. Keyes's Brigade was not engaged effectually, while Schenck's did not cross Bull Run. The lines of battle swayed back and forth with various fortunes. The enemy, by virtue of his interior lines, more readily sent his supporting forces to the front. About 3.30 p. m. Elzey's Brigade, from the Shenandoah, led by E. Kirby Smith, leaving the cars at the point nearest the sound of battle, struck McDowell's line squarely on the right flank and decided the day in favor of the Confederates.[a] Sykes's Battalion, Palmer's Squadron, and Arnold's Battery, all Regulars, covered the retreat over Bull Run. The enemy did not pursue.

This battle was McDowell's opportunity, never repeated. However well he could plan, the issue was regarded, it may be unjustly, as demonstrating that he could not execute. Of thirteen available brigades he had but four present at the decisive moment. At that period success alone was the criterion of fitness to command, and McDowell was not again considered as a commander of armies, in spite of his well-known ability and professional qualifications in other respects.

To a degree the same fate overtook the victorious generals. They passed in time under a cloud that the military world has never understood, as their careers in the Confederate service seem to stamp them as commanders of great merit. Johnston

[a] Johnston's Narrative, p. 51.

was criticised for not advancing on the heels of the retreating army and seizing Washington. There is reason to believe that this would have been impracticable. Those Confederates who had been actively engaged were as demoralized as were their fleeing foes; they were worn out by fatigue and consequently in no condition for pursuit. Nearly half of McDowell's army had not been engaged at any time. With these troops formed behind, if not even in front of, the Federal intrenched line south of the Potomac, the military chances were wholly in favor of the Confederates being repulsed had they advanced to the attack. Neither is there military reason to suppose that Johnston by crossing his troops higher up the Potomac in the days following the battle could successfully have invaded Maryland. Had he attempted it the chances were altogether that the same fate would have overtaken him that subsequently overtook Lee in similar efforts.

In the sum total of effects upon the war the battle of July 21, 1861, was far more disastrous to the Confederate than to the Union cause. This was a psychological fact not difficult to understand by the student of American history. The battle signalized the bravery of the peoples whose soldiers represented them on that field. The honorable roll of killed and wounded showed the staying qualities of each under fire. The South, however, was naturally elated beyond measure, taking victory certainly to presage the ultimate triumph of their arms. The Confederate Army wanted no further proof of superior prowess compared with their adversaries, and, under the impression that their work was done, many left their ranks for the endearments of home.

On the other hand, the defeat at Bull Run struck the military scales from the eyes of the National Government. Centerville saw the last concourse of picnickers accompanying its armies on the march. Congress rose to the occasion and made the safety of the Union the supreme law. Military necessity, against all tradition, came forward as the first consideration. With that consciousness of right and inflexibility of spirit which had placed geographical limits to the institution of slavery, thereby giving excuse for the war, the loyal millions without regard to party lines pledged themselves to

Geo. B. McClellan

U. S. M. A., 1846

raise from their midst armies and furnish whatever of supplies might be necessary to maintain that Union which they determined should not be dissolved. Measures of all kinds were now taken to give these patriotic resolutions practical military effect.

Events were moving apace in other theaters. In western Virginia graduates likewise appeared as leaders on the opposing sides. Maj. Gen. George B. McClellan, U. S. Volunteers, Brig. Gen. William S. Rosecrans, U. S. Army, Brigadier-Generals J. J. Reynolds, U. S. Volunteers, and Thomas A. Morris, Indiana Volunteers, all now entering military service from civil life, together with Capt. Henry W. Benham, U. S. Army, directed generally the movements of the Union troops, while Gen. Robert E. Lee, assisted by Brig. Gen. Robert S. Garnett and Lieut. Col. John Pegram, principally opposed them. The results were favorable to the Union cause—Garnett being killed and Pegram surrendering with his command. As military events these were minor affairs. It by no means followed that success here certainly indicated capacity to command. Importance attaches to the campaign not because of the intrinsic military merit of what was done, but for the reason that as these successful combats culminated about the time of McDowell's defeat, the commanding general in western Virginia, McClellan, came forward with a glamor of success deemed worthy the thanks of Congress, as the proper officer to command the Potomac army, and later the armies of the Union. In this respect perhaps no campaign of the civil war was more important than the affairs dignified by that name in western Virginia in the early summer of 1861. The necessities of the nation were both great and grave. Small events swiftly raised the new commander to the position of leader in momentous ones.

The onerous duty now devolved upon General McClellan of organizing and leading the principal army of the Union. To the former task he addressed himself during the remainder of the year with energy and ability. He had at his command the utmost resources of the Government both in men and supplies. History pays him the tribute of having proved an able army organizer.

The State of Missouri guarded the left flank of the Southern Confederacy. Its people were sharply divided in their sympathies, the preponderance perhaps being on the side of the Union. Both parties reckoned in their ranks the wealthy and socially influential; but here the Southerners held the balance, including as they did nearly all the official world of the old régime. A struggle for supremacy was begun which for bitterness was nowhere else paralleled. The Union cause triumphed before many months. This was due to the fact that the National Administration, with a juster appreciation than the Confederates of the importance of Missouri, soon placed able generals there, and, by liberally supporting them, deprived the enemy not only of an abiding place in the State but also in Arkansas, in effect soon driving him from all territory north of Red River in Louisiana. The failure of the Confederacy to place an able commander west of the Mississippi, to rally its sympathizers to maintain, if possible, the line of northern Missouri, and the permitting itself easily to be forced back instead to the line of the Mississippi River, has been pointed out as one of the most serious mistakes of its military policy.

It is not possible to overestimate the value of the services of graduates who labored in the Department of Missouri securely to attach that quarter to the Union. No one appreciated this more than President Lincoln. Even the loyal there were divided into irreconcilable factions, as far from affiliation with each other as each was distant from the common enemy. It required address, unceasing vigilance, patience without limit, to reconcile all these differences, even to the point of preserving the loyal true to their allegiance. In this great work were involved in turn Major-Generals David Hunter, Henry W. Halleck, Samuel R. Curtis, John M. Schofield, and William S. Rosecrans. These labors were in a distant field, but slightly attended by excitements incident to the movement of armies and, therefore, little heeded by the world; yet, great as were the services of all these distinguished generals in various fields of activity during the civil war, it is not too much to assert that nowhere else were they more valuable to the cause than in the civil and military

administration of affairs in Missouri. General Schofield, then but 31 years of age, gave proof here of those qualities of mind which carried him not only to the head of the Army, but have given him distinction above all others as THE MILITARY STATESMAN.

Another graduate whose name, patriotism, and military fame are inseparably united with the early efforts of Missouri to place herself in the ranks of loyal States was Capt. (afterwards Brig. Gen.) Nathaniel Lyon, U. S. Volunteers. Having signalized himself by successful measures taken to prevent the city of St. Louis and the Government military property there from falling into the hands of the enemy, he was deemed worthy to be intrusted with the command of the army in that field. The military operations in Missouri were of rather a desultory character, but on August 10, 1861, Lyon found himself, with 5,400 men and 16 guns, confronting Brig. Gen. Ben McCulloch, with 10,175 men and 15 guns, at the point where the road from Springfield to Fayetteville, Ark., crosses Wilsons Creek. Lyon's army was composed of four brigades and some unattached organizations: First Brigade, Maj. Samuel D. Sturgis; Second Brigade, Lieut. Col. George L. Andrews; Third Brigade, Col. George W. Deitzler; Missouri Volunteer Brigade, Col. Franz Sigel.[a] Besides Brigadier-General Lyon the graduates present included Maj. John M. Schofield, Missouri Volunteers, chief of staff; Maj. Samuel D. Sturgis, U. S. Army; Captains Gordon Granger, Joseph B. Plummer, James Totten, Frederick Steele, Eugene A. Carr; First Lieutenants Charles E. Farrand, John D. DuBois. Of these, Schofield, Sturgis, Granger, Plummer, Steele, and Carr subsequently rose to the grade of general officer.

McCulloch's army was organized into brigades and divisions, but without symmetry, the Missouri and Arkansas troops acting rather as cooperating forces than as integral parts of the same army. The former were divided into four divisions, the latter into two brigades. The graduates present included Lieut. Col. James P. Major, Colonels James McQueen

[a] Battles and Leaders of the Civil War, vol. 1, p. 306.

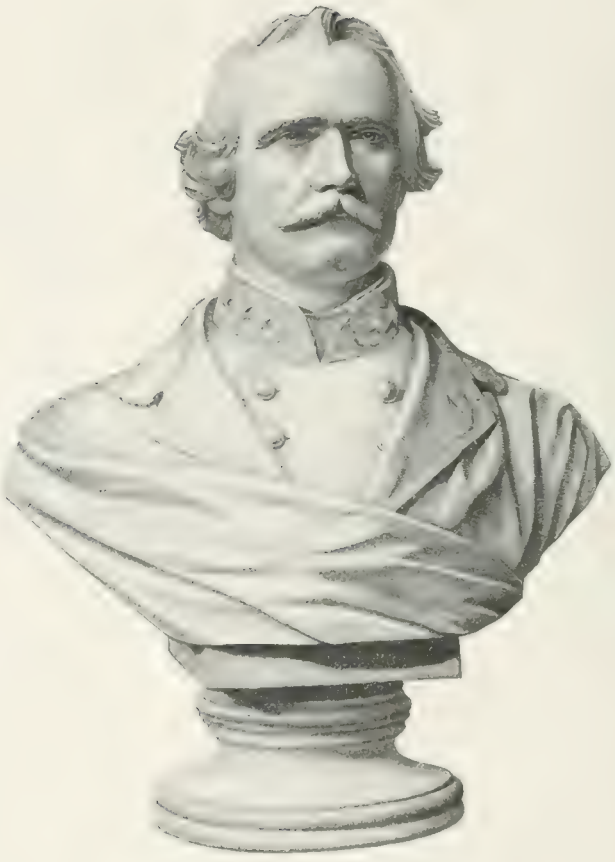
McIntosh and Louis Hébert, all of whom became brigadiers subsequently, and Brig. Gen. N. Bartlett Pearce.

This battle illustrated the determined character of Brigadier-General Lyon. Not only did it involve assailing an enemy twice as strong as himself in a well-chosen position, but by detaching Col. Franz Sigel, with one-fifth of his command, to make a long detour and attack the enemy in rear, he deprived himself of even the full effective fighting power of the force at his command, and subjected his troops to the danger of being beaten in detail. General Lyon fell killed while bravely leading his troops. After furious fighting, in which the Union troops lost 17.5 per cent and the Confederate 10.4 per cent killed and wounded, of the total forces, the former ceased the attack and retreated, leaving the field in possession of the enemy. The latter, however, had been so shaken by the severe contest, the attack had been so bold, and the face presented by the retreating forces so undaunted that there was no pursuit.

General Lyon was brave to the verge of rashness. He held command at a period of the war when it was necessary for officers to lead their troops in order to inspire the latter with courage. The percentage of killed and wounded in the Union army at Wilsons Creek was twice what it was at Bull Run. Notice here was served on the enemy of the desperate character of their undertaking permanently to enroll Missouri in the cause of the Confederacy.

Kentucky was not permitted long to indulge the unworthy dream of neutrality. Not only was such an attitude preposterous in the war now being waged, but it was repugnant to the chivalric spirit which always has characterized its people. Party spirit ran high, but the people were all arrayed unmistakably on one or the other side. Fortunately this was not attended by the implacable resentments, approaching savagery, exhibited in Missouri.

Brig. Gen. Robert Anderson, promoted for services at Fort Sumter, was appointed in May to command the Department of the Cumberland, which included Kentucky. At his request Brig. Gen. William T. Sherman was assigned to duty with, and, in November, succeeded him in command of that



A. A. Gardner

U. S. M. A., 1826.

department. General Sherman himself was relieved, November 15, 1861, by Brig. Gen. Don Carlos Buell, U. S. Volunteers, commanding the Department of Ohio.[a]

In the eastern part of the State Brig. Gen. George H. Thomas was maneuvering with an eye directed toward the loyal district of Tennessee, defeating the enemy January 17, 1862, in a spirited engagement at Mill Springs, Ky. This action derived importance solely from the newness of the war and the exhilaration following a limited success to either party on even a small field. General Thomas had among his commanders but one graduate, Col. Horatio P. Van Cleve, who afterwards became brigadier-general of volunteers. The Confederates were commanded by Maj. Gen. George B. Crittenden, C. S. Army, who, with Capt. Arthur M. Rutledge, afterwards chief of ordnance of Lieutenant-General Polk's army, were the only graduates present commanding troops. It was at this fight that the Confederate Brig. Gen. F. K. Zollikoffer was killed.

In the western part of Kentucky Brigadier-Generals U. S. Grant and Charles F. Smith commanded, the former with headquarters at Cairo, Ill., the latter at Paducah.

Opposed to these was the Confederate general, Albert Sidney Johnston, commanding Department of the West. He had under him the Confederate Generals Leonidas Polk, at Columbus, where fortifications blocked the Mississippi, William J. Hardee and Simon B. Buckner in the interior of the State, and Humphrey Marshall in the eastern part. They were his principal lieutenants, and, like himself, all graduates. Such was the rectified military line in Kentucky at the close of 1861.

From his headquarters at Cairo, Brigadier-General Grant, November 7, moved a Federal force of about 3,000 men, in two brigades, commanded, respectively, by Brig. Gen. John A. McClernand and Col. Henry Dougherty, to attack the Confederates opposite Columbus. It encountered at Belmont, Mo., Confederates to the number of 4,000 men, which resulted in a very severe engagement. Maj. Gen. Leonidas Polk commanded the Confederate troops, with Brig. Gen. Gideon

[a] Battles and Leaders of the Civil War, vol. 1, p. 358.

J. Pillow and B. F. Cheatham commanding brigades. This affair was important mainly through the experience gained in maneuvering troops and as indicating the character of the fighting that might be expected on larger battlefields. On the Union side Col. Napoleon B. Buford, afterwards brigadier-general of volunteers, was, besides General Grant, the only graduate; while, besides Polk, Capt. Melancthon Smith, who afterwards was colonel, chief of artillery, Hardee's Corps, Brig. Gen. John P. McCown, afterwards major-general commanding a division in the same corps, together with Maj. A. P. Stewart, later lieutenant-general, were the graduates on the Confederate side.

While the losses in killed and wounded at Belmont showed how the troops would fight, a little incident that occurred evinced how wholly lacking they then were in appreciation of military discipline. The Confederates were at first driven from their camps in great disorder. Instantly the Federals broke ranks to pillage, while the Federal officers commenced making speeches as at a political meeting, dwelling upon their prowess and the lack of it in the enemy. That enemy, however, soon rallied, and, reenforced, attacked in his turn, with the result that the Federals sought safety on board their transports. This was a lesson which, properly taken to heart, was worth all the lives it cost. Unfortunately it appears to be well nigh impossible to teach new troops the necessity for discipline and vigilance except by such experiences.

The various expeditions on the coast of North and South Carolina during 1861 and early in 1862 had for their principal object effectually to blockade the coast where practicable, cutting off supplies to the enemy from abroad. They inaugurated that starving policy which, consistently and relentlessly pursued as the facilities of the National Government increased, ultimately resulted in wholly isolating the Confederacy from the outside world. The expeditions all involved cooperation between the Army and Navy, and, thanks to the patriotic impulses that inspired all concerned, were eminently successful. In the councils that originated and perfected the plans for these movements, graduates

appeared almost exclusively, as they were then coming forth in all other fields of military leadership. Lieutenant-General Scott called to his assistance in these consultations Col. Joseph G. Totten, Quartermaster-General Meigs, Brig. Gen. T. W. Sherman, U. S. Volunteers, Capt. Horatio G. Wright, and Lieut. Col. George W. Cullum, aid-de-camp.

The expedition against Port Royal, S. C., was led by Brig. Gen. Thomas W. Sherman, his three brigades being commanded, respectively, by Brigadier-Generals Egbert L. Viele, Isaac I. Stevens, and Horatio G. Wright, the latter becoming subsequently major-general. The expedition of August, 1861, led by Maj. Gen. Benjamin F. Butler, against the enemy in the vicinity of Hatteras Inlet, North Carolina, although successful in making a lodgment on the coast, was not of sufficient strength decisively to assert the national authority; and, although Brigadier-Generals J. K. F. Mansfield, U. S. Army, and Thomas Williams, U. S. Volunteers, were later sent there to command, another and stronger expedition under Brig. Gen. Ambrose E. Burnside, U. S. Volunteers, was fitted out to more thoroughly reduce the enemy's strongholds in that vicinity. The three brigade commanders were Brigadier-Generals John G. Foster, Jesse L. Reno, and John G. Parke, all selected by the commanding general because of their recognized military merit. These officers, except General Butler, were West Pointers; as, on the other side, were, in North Carolina, Maj. Gen. Benjamin Huger, and Col. Charles C. Lee, the latter soon afterwards killed at Gaines Mill; and, at the Port Royal, S. C., defenses, Brig. Gen. Thomas F. Drayton, C. S. Army, and Col. William C. Heyward, Twelfth South Carolina.

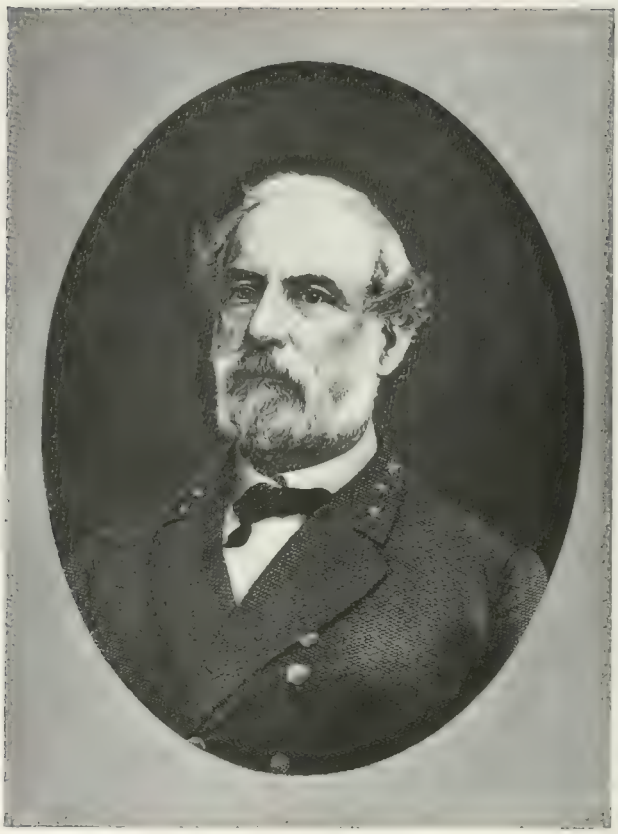
In the extreme southwest the Confederate attempt to invade New Mexico proved equally disastrous to their armies, as did similar efforts east of the Mississippi. The former led, January 21, 1862, to a sanguinary struggle at Valverde, N. Mex., between the Union forces commanded by Col. E. R. S. Canby and Lieut. Col. Benjamin S. Roberts, and the Confederates commanded by Gen. H. H. Sibley. The forces on each side were in the vicinity of 2,000, and the result was that Canby, after the loss of some of his artillery,

withdrew in considerable disorder from the field.[a] The Union forces lost 11.4 per cent of their total strength in killed and wounded, among the former being Capt. Alexander McRae and First Lieut. Lyman Mishler. These officers were graduates, as were Captains David H. Brotherton, Charles H. Ingraham, and Henry R. Selden, with First Lieutenants Robert H. Hall and Ira W. Claflin. Among others who distinguished themselves in that remote part of the Union, and assisted to drive the enemy back into Texas never to return, were Col. Gabriel R. Paul and Capt. John F. Ritter. Colonel Paul was appointed brigadier-general of volunteers, suffering total loss of eyesight by wound in the battle of Gettysburg. Captains Selden and Ritter were subsequently appointed colonels of volunteers. All these officers performed their duty out of sight of those who then guided the nation's destinies. In a measure they also were out of mind, due to the overshadowing importance of events taking place in the east. Yet they proved worthy of the confidence reposed in them by their countrymen and by the officers duly appointed over them. The Confederates did not a second time attempt to invade that portion of the Union.

October 21, 1861, there occurred at Balls Bluff, Virginia, just above Washington City, that disaster to the Federal arms which resulted in the death of Col. E. D. Baker, Senator from California, the officer in command of the troops on the spot.[b] The loss of this eloquent and popular Senator caused intense excitement, and led to the arrest of Brig. Gen. Charles P. Stone, U. S. Volunteers, commanding the division of which Baker's Brigade formed part, and his confinement for some months without trial in one of the military prisons. In fact, however, the disaster is easily explained by contrasting the lack of military experience on the part of Colonel Baker with the military knowledge, ability, and experience of Brig. Gen. N. George Evans, of the Confederate service, who was opposed to him. It was a repetition of our experience in the attack on Queenstown Heights, Upper Canada, October 10, 1812. But it was at a time when suspicion stalked abroad in the

[a] Battles and Leaders of the Civil War, vol. 2, pp. [illegible].

[b] The Civil War in America, vol. 2, p. 251. Battles and Leaders of the Civil War, vol. 2, p. 125 et seq.



U. S. M. A., 1829.

land; when smothered whisperings were taken as conclusive proof; when no one felt certain of the loyalty of his neighbor or perhaps members of his own family. It always is an incident of this condition of society during war that great injustice is done to individuals, and justified by the necessities of the times. Thus it was that General Stone was unjustly treated. It is not too much to assert that he in no way forfeited the esteem of his associates in arms. Evidence of this is found in the fact that General McClellan applied for him after he was released; General Hooker, on taking command of the Army of the Potomac, asked for his services as chief of staff; General Banks applied for and made him chief of staff; General Grant assigned him to command of a brigade in the Fifth Army Corps. Through his mistaken treatment an unjust aspersion was attempted to be cast upon the Military Academy. It is fitting that this be removed at the same time that the long-suffering, loyal, and accomplished general is vindicated.

OPERATIONS, 1862.

The assignment of General McClellan to the command of the Division of the Potomac July 27, Department of the Potomac August 17, Army of the Potomac August 20, and as general in chief of the armies of the United States November 1, 1861, marked the determination of the Administration to attempt to avail itself of the best military elements at its disposal in the further prosecution of hostilities. The principle was right; but, as might be expected, it proved that experience in command alone could develop successful leaders. This desire, in a government such as that of the United States, always will be modified by the necessity that exists for placating those who control in political affairs. But, this reservation being understood, the disposition now seemed to be in military matters to give greater heed than heretofore to the advice of professional or educated soldiers. The defeat at Bull Run helped to dispel the illusion that service in the Army was the short and easy path to political preferment. It further was observed that, in the enemy's army, while political generals were not unknown, the sentiment was

against them, and the disposition was to put them almost without exception in unimportant places. Looking along the entire defensive line of the Confederacy every vital point was seen to be defended by a general specially selected for his professional fitness.

The events of 1861 confirmed President Lincoln's Administration in the belief that the only hope of national success lay in pitting against such formidable adversaries commanders equally skillful with themselves. One by one the political generals, in spite of party pressure, became discredited through self-demonstrated unfitness; and when the war ended not one was left in a position of responsibility. This refers only to those who came into service at one bound with rank suited to the command of an army, and not to those gallant generals and others of less degree who entered the Army from civil life in the lower military grades, and rose through meritorious service in the field to great and deserved distinction; officers who proved an honor to their instructors—those graduates in superior command who taught them the elements as well as the higher branches of their profession.

This change in the national military policy did not escape the watchful eye of the enemy. Mr. Jefferson Davis sent a warning note to his subordinates that they in consequence must double their vigilance and energy and prepare to meet a foe numerous, well-equipped, determined, but, above all, skillfully commanded. If on the one side were Beauregard, Joseph E. Johnston, Robert E. Lee, Bragg, Albert Sidney Johnston, Hardee, and Polk, they were confronted at the close of 1861 by McClellan, Rosecrans, Buell, George H. Thomas, Charles F. Smith, William T. Sherman, U. S. Grant, and Henry W. Halleck.

It seemed evident that thereafter the war was to be prosecuted in the most scientific manner of which each side was capable. With each it was a simple question of how certainly to bring its most competent military men to the front.

The first problem to be solved related to the strategy of the war. The theater of operations in its entirety had to be considered, and the method of attempting successfully to solve that problem determined.

Having accomplished this, what remained to be done was to place the armies, properly fitted for their task, upon the lines of operations thus strategically determined, there to decide through wager of battle alone with which banner victory finally should rest.

For the Confederates the strategical problem was easy. Politically their demand was to be permitted to pursue undisturbed their assumed right peaceably to secede from the Union. This attitude solved that problem for them. They stood on the defensive; and although at a later day this course was temporarily departed from, the waiting policy was, upon the whole, adhered to, and this almost from necessity, as the Confederacy proved too weak for any other. It had the advantage of affording interior lines for easy and quick intercommunication of armies, and of conducting movements in a country where every ford, road, and path was known, and where the inhabitants were intensely sympathetic. The disadvantage was that the initiative of the enemy had to be awaited, the blows parried wherever he chose to deliver them, and should the Confederate armies be driven back, the constantly diminishing area of the States which they guarded would permanently be subjected to ravages that always attend hostile occupation.

The national commanders found their strategical problem much more complex. Their task was to crush a rebellion embracing several States, sustained by armies aggregating hundreds of thousands of troops, energetically supported by a brave, devoted people prepared for every sacrifice.

One of the first strategic national measures was to cut off the enemy from outside supplies by sea, and this important duty, admirably performed, was accomplished through joint efforts of the Army and Navy. It remained thereafter only to seek and destroy the armies of the Confederacy wherever they might be found within its vast territory.

At first it was the tendency of both parties to pay too willing an ear to every call for protection, thus uselessly disseminating the forces and wasting their energies in futile vigils or combats. The first year, however, dissipated these views. Thereafter the great mass of the troops, organized

into main armies, were directed upon the vital points, those troops not so assembled being used in such manner as would facilitate or render more decisive the principal operations.

The Confederate left flank in Missouri was in the air. It was overlapped by the loyal State of Kansas, and to have held it to the Confederacy would have demanded a large army directed with consummate generalship; but the dominating needs of the Confederacy elsewhere soon caused this relatively less important section to be neglected, and after a few spirited contests, practically abandoned.

In the study of the strategical problem presented to the Federal authorities the States forming the Confederacy were seen to be divided into three parts by natural boundaries. One was west of the Mississippi River; one thence to the Alleghenies; the third extended from these mountains to the Atlantic. Consideration of these areas, and the boundaries limiting them, led to the selecting of the lines of operation along which in a general way the National armies must advance. East of the Alleghenies, near the seaboard, were the capitals of the two governments, and, as has been pointed out, this circumstance plainly indicated one line of advance. The opening and retaining unobstructed the Mississippi not only would cut the Confederacy in two, isolating the territory west of that river, but, by facilitating transportation of troops and supplies, would add immensely to the fighting power of the Union armies. The district between the Mississippi and the Alleghenies was a vast granary, covering several States, whose people generally had cast their fortunes with the Confederacy, and were to be found in battle array by their own firesides prepared to vindicate the cause they had espoused.

The campaign of 1862 was mainly directed upon lines of operations determined by these strategical considerations. After a struggle for three years along them the armies of the Union triumphed.

Before considering the main operations of the armies upon the strategical lines just indicated, some minor but coordinate movements must be noticed.

The Confederate Maj. Gen. Earl Van Dorn having, January 29, 1862, been assigned to command of the district

including Missouri and Arkansas, it was not long until the opposing forces there confronted each other. March 7 the National troops were concentrated at Pea Ridge, in the northwest corner of Arkansas, under Brig. Gen. Samuel R. Curtis, U. S. Volunteers. The division commanders were Brig. Gen. Franz Sigel, Colonels Jeff. C. Davis and Eugene A. Carr. There were four divisions and seven brigades, with a number of unattached regiments; total strength, 10,500, with 49 guns.

Maj. Gen. Earl Van Dorn commanded the Confederates. The subordinate commanders were Maj. Gen. Sterling Price and Brig. Gen. Ben. McCulloch, with numerous brigade or division commanders under them, the whole number being 16,200 infantry and cavalry and about 50 guns. The battle lasted two days, and was of almost as sanguinary a nature as that of Wilsons Creek, a few months before, in which many of the same troops had been engaged. Brigadier-Generals Ben. McCulloch and James McQueen McIntosh were among the slain.

The Confederates were defeated, and never in that quarter recovered from the blow received.[a] Thenceforth the holding of Missouri and wresting Arkansas from the Confederacy gave the National authorities little trouble. In this battle the Federal loss was 11.2 per cent and the Confederate 5.5 per cent killed and wounded of all the forces, the killed including an unusual number of officers. On the Union side the graduates were Brigadier-General Curtis and Colonel Carr, while among the Confederates were Major-General Van Dorn, Brigadier-Generals James McQueen McIntosh and Daniel M. Frost and Col. Louis Hébert. General Curtis remained west of the Mississippi during the war, but many of his troops were sent east of that river, as also were the forces of Van Dorn and Price when it was seen that the struggle for the trans-Mississippi was to be fought out on the great central strategic line of operations. Price afterwards returned to his native lair, but without power to do more than make raids through Arkansas and Missouri, notably in 1864, but they were wholly without effect npon the general results of the war.

An incident following the capture of the forts at Port

[a] Battles and Leaders of the Civil War, vol. 1, p. 314, et seq.

Royal, S. C., was the reduction April 11, 1862, of Fort Pulaski, built near the mouth of the Savannah River, and intended to defend the city of Savannah, 18 miles above.[a] Movements to that end were instituted by Brig. Gen. Thomas W. Sherman, U. S. Volunteers, commanding at Port Royal, and carried on subsequently under the orders of Major-General Hunter, U. S. Volunteers. The siege operations incident to the capture of Fort Pulaski were interesting as throwing light upon the effect of modern rifle guns, then little tried, in breaching forts of the strongest kind at that time known. Several young graduates were engaged in this work—Capt. Quincy A. Gillmore, Lieutenants J. H. Wilson, P. H. O'Rorke, Horace Porter—all afterwards highly distinguished. Gillmore and Wilson became major-generals of volunteers; O'Rorke fell leading his regiment at Gettysburg; Porter became aid-de-camp to the general commanding the armies of the United States. The reputation which Captain Gillmore here laid the foundation for as a conductor of siege operations, augmented subsequently by successful attacks on the Confederate forts guarding the entrance to the city of Charleston, S. C., in 1863, gave him just preeminence as a skillful commander and military engineer. The other graduates present on the Union side were Brigadier-Generals Henry W. Benham and Egbert L. Viele, the former as division the latter as brigade commander. On the side of the Confederates Brig. Gen. Alexander R. Lawton, afterwards quartermaster-general, C. S. Army, a graduate, commanded the enemy's forces in that district, though not immediately those stationed at Fort Pulaski. The capture of this fort closed the Savannah to blockade runners. The city of Savannah itself remained in possession of the enemy until December 21, 1864, when it was found to have been abandoned by General Hardee and was taken possession of by Gen. W. T. Sherman, who had approached the city from Atlanta.

The movement along the strategic line of the Mississippi River was to be prosecuted at once, both from its mouth and downstream from Cairo, Ill. Both movements involved the

[a] Battles and Leaders of the Civil War, vol. 2, pp. 1–12.

cooperation of the Army and Navy.[a] General McClellan reported that the Army to accompany the attack at the mouth of the river, pushing thence upward, would be ready to embark by January 15, 1862. It was to be composed of about 20,000 troops—sufficient to occupy and hold all strong places on the river as high as and including Vicksburg. It was intrusted to the command of Maj. Gen. B. F. Butler, U. S. Volunteers, an able administrator and zealous officer. Before, however, the expedition sailed the army accompanying it was cut down to about 15,000.

Both of General Butler's brigade commanders, Brigadier-Generals John W. Phelps and Thomas Williams, and also Col. Oliver P. Gooding, Thirty-first Massachusetts, were graduates. It was here that General Phelps conceived the idea of organizing negro troops, which caused him to be outlawed by the Confederate authorities. Neither were the Federal authorities at that time ready for this innovation, which led to General Phelps tendering his resignation.[b] The circumstance is interesting in the light of the change of heart later in both the National and Confederate councils on this subject; the former raising such troops in large numbers, the latter finally looking with favor upon similar measures as their military necessities became more urgent.

On the Confederate side Maj. Gen. Mansfield Lovell commanded. As at Savannah, the enemy seemed to rely upon the fortifications guarding the river as their main element of security. These consisted of Forts Jackson and St. Philip, the former on the west the latter on the east side, facing each other. The Confederate navy assisted the land defense. Brig. Gen. Johnson K. Duncan commanded the coast defenses. Lieut. Col. Edward Higgins, C. S. Army, formerly of the U. S. Navy, commanded at Forts Jackson and St. Philip, and Brig. Gen. Martin L. Smith the Chalmette lines immediately in front of the city of New Orleans. All the Confederate commanders named, except Lieutenant-Colonel Higgins, were graduates.

[a] The Civil War in America, Draper, vol. 2, p. 327. Battles and Leaders of the Civil War, vol. 2, p. 22 et seq.

[b] The Civil War in America, Draper, vol. 3, p. 18.

The garrison of the two forts aggregated 1,100 men. And the confidence of the Confederate authorities in the entire sufficiency of their joint fort and fleet defense is evidenced by the fact that General Lovell had at New Orleans but 3,000 ninety-day troops.

The United States flotilla, under Capt. David G. Farragut, forced the way, spite of all opposition, sinking or capturing the enemy's war vessels, and, running past his forts, landed General Butler's army at New Orleans May 1, 1862.

General Lovell was powerless to avert this calamity. It can not be denied that both the Confederate fleet and forts made a determined and gallant defense. The National flotilla was too powerful to be resisted, and was commanded by a sailor whose motto was "Victory or death." Yet so fickle is military fortune that the Confederate commanding general, Lovell, because he had not accomplished impossibilities, passed permanently under the cloud of blighting official disapprobation. Gen. Joseph E. Johnston states that, in the winter of 1863–64, after he had relieved General Bragg of the command of the Army of Tennessee, he repeatedly but vainly applied for the services of General Lovell as commander of one of his army corps.

General Butler proceeded at once, in conjunction with the Navy, to clear the enemy from the river up to and including Vicksburg. The command of the troops was intrusted to Brig. Gen. Thomas Williams, U. S. Volunteers. Baton Rouge was taken possession of on the 12th of May. The advance of the fleet anchored below Vicksburg on the 18th, when the joint demand of General Williams and Commander Lee of the Navy for the surrender of the place was refused. By June 28 the Navy, together with General Williams's force, had been largely increased. That day the flotilla attacked the defenses and was repulsed.[a] General Halleck at Corinth was earnestly appealed to by Farragut to assist with a land force; but this being impracticable at that juncture, and the enemy being reinforced both on land and water, nothing remained for the flotilla and troops to do but to fall back to Baton Rouge. At the latter place, on August 5, General Williams's force, about

[a] Battles and Leaders of the Civil War, vol. 3, p. 582.

2,500, was attacked by the Confederate Maj. Gen. John C. Breckinridge, with the same number of troops. After a spirited combat the attack was repulsed. In this engagement the Union troops were aided materially by the vessels of the flotilla. The skillful and gallant veteran, General Williams, fell at the head of his troops." Breckinridge had two graduates with him, Brigadier-Generals Daniel Ruggles and Ben. Hardin Helm, the former commanding a division, the latter a brigade.

The Confederates now commenced, under Van Dorn's orders, strongly to fortify Port Hudson, south of Vicksburg, and 135 miles above New Orleans. General Butler withdrew the Union troops from Baton Rouge, and, for that year, practically ended all energetic efforts from that direction to loosen the enemy's grasp on the river. With the routing the Confederates out of the district on the west side of the Mississippi, opposite New Orleans, by Brig. Gen. Godfrey Weitzel, U. S. Volunteers, General Butler's operations ceased, he being relieved December 15, 1862, by Maj. Gen. Nathaniel P. Banks.

The progress of the National forces down the Mississippi was facilitated by the abandonment of Columbus, Ky., by General Beauregard's order, immediately after the capture of Forts Henry and Donelson by General Grant on February 6 and 16, 1862, respectively. In truth, the capture of these forts and the carrying of General Grant's army up the Tennessee and Cumberland rivers into the State of Tennessee had completely turned the enemy's upper Mississippi River position. General Beauregard directed that the Confederates fall down the river to Island No. 10, directly west of Fort Donelson, resolving to make the stand for retention of the Mississippi there and at Fort Pillow, Tenn., 100 miles farther down, and about 50 miles above Memphis. The latter was a place of great strategic importance. It was commercially the most important city between St. Louis and New Orleans. It was the western terminus of the railroad thence to Charleston, S. C., spanning the Confederacy; besides other railroads ran both north and south from here that it was important for the Confederates to hold.

[a] Battles and Leaders of the Civil War vol. 3, p. 584.

Following up the retreating enemy a combined Army and Navy movement was made against Island No. 10, with such energy and hearty cooperation that, by April 8, the Confederate works were abandonded and nearly their whole force captured.[a] The Union Army at Island No. 10 was commanded by Brig. Gen. John Pope, a graduate, whose success here seemed to have had an important bearing upon his selection subsequently during the same year to the command of the Army of Virginia. The former was organized into five infantry, one cavalry, one artillery division, some unattached troops, and a flotilla brigade to help man the gunboats.

Of the graduates present, Brigadier-Generals David S. Stanley, Schuyler Hamilton, Joseph B. Plummer, Gordon Granger, and Eleazer A. Paine commanded divisions; Col. J. L. Kirby Smith an infantry; Col. Napoleon B. Buford the flotilla brigade; Col. J. K. Mizner a cavalry regiment, and Capt. George A. Williams six companies of the First U. S. Infantry, acting as heavy artillery. On the side of the Confederates the graduates were Maj. Gen. John P. McCown, commanding until March 31, when he was succeeded by Brig. Gen. W. W. Mackall, Brigadier-Generals A. P. Stewart, and Lucius M. Walker, the latter of whom was killed in a duel September 19, 1863, by Maj. Gen. John S. Marmaduke.

General Pope proceeded, convoyed by the flotilla, to follow up the enemy and drive them from Fort Pillow. On April 14 he landed 6 miles above Craigheads Point, on the west bank. At this time, however, he was recalled, and his army transferred to the more pressing field of Corinth. A detachment of 1,500 men was left behind with the Navy. Thereafter the fighting at Fort Pillow and Memphis was almost wholly between the opposing flotillas. On June 4 the Confederates, who could not themselves spare many troops to defend these places, destroyed their works as far as possible, and carrying off public property fell back from Fort Pillow to Memphis. Thus the river, fighting step by step, was gradually being reduced into the hands of the Union authorities, who ever afterwards retained it. On June 6 Memphis

[a] The Civil War in America, vol. 2, p. 27; Battles and Leaders of the Civil War, vol. 1, p. 439.

succumbed, the Confederate river defense fleet being either captured or driven off. Here for some months the attempt to open up this strategic line came to an end. Practically the Confederates still controlled from Memphis to Baton Rouge; but later in 1862 the Union troops and flotilla forced their way down to a point just above Vicksburg. It required the struggle of another year, the Army and Navy working together, to loosen permanently the grasp of the Confederacy upon the Mississippi.

The enemy employed this time in strengthening their defensive works at both Vicksburg and Port Hudson. Never was energy more unfortunately directed for the defenders. These fortifications proved to be death traps to those who constructed them. The grave question for the Confederate garrisons became in time, not how they could hold these works, but how they could get away from them. This they only succeeded in doing by the surrender, not of the fortifications alone, but of the armies defending them.

In truth, considering alone the purpose they were intended to serve, these works appear to have been constructed on a faulty plan. The vital point to the Confederacy was to destroy the Union armies. To accomplish this their true policy was to put every available soldier into the field and to the spot where his presence would tell most. All else was of secondary importance. It was therefore a grave mistake to establish immense intrenched camps on the Mississippi River, absorbing the troops for garrisons which were needed in the mobile field armies, and which garrisons, like those at Vicksburg and Port Hudson, were destined to be captured with the works they defended. If, instead of such large camps, strong forts had been constructed in lieu of them, with armaments bearing upon selected points of the river channel of weight of metal sufficient, with assistance of the Confederate fleet, to sink any flotilla attempting to pass, there is reason to believe that the river might have been more securely held. Besides, by turning footloose the large garrisons, since the forts would have required relatively small ones, the chances of Confederate success in the field would have been greatly improved,

and if success against the national armies could be but attained it mattered but little what temporarily became of the posts on the Mississippi.

By contrast, an illustration of the proper use of an intrenched camp was, as the war progressed, seen at Washington City. Here a circle of strong earthworks enabled a comparatively small force, or one largely undisciplined, to render the capital fairly secure, thus permitting the great body of troops that otherwise would have been required to defend the city to join the active army against the enemy.

In January, 1862, Brig. Gen. U. S. Grant, commanding western Kentucky, obtained permission to visit General Halleck, commanding the Department of the Missouri, at St. Louis, and laid before the latter a plan of campaign up the Tennessee and Cumberland rivers.[a] This would carry the Union army against the center of the line occupied by Gen. Albert Sidney Johnston, turning his forces on the Mississippi River as well as at Bowling Green and Nashville. If in addition the Confederates were defeated wherever they might be found, the Union army penetrate to and seize the Memphis and Charleston Railroad, the enemy would be deprived of the advantage for concentration that this road gave him. The proposed line of advance was in fact one of the three strategic lines along which with greatest advantage the National forces could be carried forward to overwhelm and destroy the armies of the Confederacy. Its utilization as here indicated doubtless occurred to many others.

At this time General Johnston had the advantage of being supreme in that quarter, while the Federal armies were independent, only united through the War Department at Washington, and the people generally were friendly to Johnston, thus practically relieving him from all anxiety about the safety of his lines of communication. He had established for his advanced line of defense a small force at Fort Henry and a larger one at Fort Donelson, on the lower Tennessee and Cumberland rivers.

On February 2, 1862, the advance against Gen. Albert Sidney Johnston commenced. On the 6th the Fort Henry

[a] Personal Memoirs of U. S. Grant, vol. 1, p. 286.

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garrison, commanded by Brig. Gen. Lloyd Tilghman, a graduate, killed May 16, 1863, at Bakers Creek, Miss., surrendered. He previously had sent his entire command, except the few men left in Fort Henry to cover its retreat, to Fort Donelson, 11 miles distant. Tilghman, by sharing the fate of his surrendered troops, set a chivalric example in striking contrast to that of some generals in that section a few days later.

Brigadier-General Grant now moved, in conjunction with the flotilla, against Fort Donelson.[a] His army was in three divisions, ten brigades, and some unattached organizations. The divisions were commanded by Brigadier-Generals John A. McClernand, Charles F. Smith, and Lew Wallace. Of these, Charles F. Smith alone was a graduate. The other graduates in the Union army besides General Grant were Colonels J. J. Woods, Twelfth Iowa, badly wounded at Shiloh; Crafts J. Wright, Thirteenth Missouri; Charles Whittlesey, Twentieth Ohio. On the Confederate side the graduates were Brigadier-Generals Simon B. Buckner and Bushrod R. Johnson, and Lieutenant-Colonels Hylan B. Lyon, afterwards a brigadier-general of Forrest's command, and James M. Wells, subsequently colonel Twenty-third Mississippi.

The Union army numbered about 17,000, the Confederates about 15,000 men. The former had the assistance of the flotilla. In the important matter of commanders the Confederates, however, labored under their principal disadvantage.

It is supposed that General Johnston, or the Confederate Administration, felt impelled by political considerations to give to Brigadier-Generals John B. Floyd and Gideon J. Pillow the very important command at Fort Donelson, which events proved they did not know what to do with, otherwise such a mistake would not have been made. The result was the first grave disaster to the Confederacy, with corresponding elation of the friends and armies of the Union. This was the direct result (the adverse indirect consequence to the Confederacy was far more important): It brought prominently into professional and public favor that Union commander who, possessing those qualities of mind out of which great

[a] Battles and Leaders of the Civil War, vol. 1, p. 398 et seq.

soldiers are made under the trip hammer of experience and appreciating the true character of the fighting to be done, pressed with relentless persistency the advantage thus gained until the brave armies of the Confederacy lay in succession prostrate at his feet.

Having passed from the 6th until the 12th of February in examining the country between Forts Henry and Donelson, General Grant was before the latter on February 13—at the same time the every faithful Navy was preparing to act its part.

The Confederates were protected by well-located and thoroughly constructed fieldworks, with heavy batteries bearing on the river approaches. Brig. Gen. Simon B. Buckner's Division was on the right; thence six brigades under Pillow completed contact to the left, with the river above. Gen. John B. Floyd, by virtue of seniority, was in command, with Brig. Gen. Bushrod R. Johnson as chief of staff.

On February 14 the Confederates werecompletely invested—McClernand's Division on the Union right opposite Pillow, Smith's Division on the left opposite Buckner, Wallace's Division opposite the Confederate center. The naval attack on the land batteries that day was repulsed.[a] A council of war having, however, advised it, on the early morning of the 15th the enemy made an heroic attempt to fight his way out by his left; but after partial success, due in great degree to General Grant's absence to consult Flag-Officer Foote, of the Navy, at the latter's request, the Confederates were repulsed, and the original right of the Union lines not only reoccupied, but advanced, while Gen. Charles F. Smith charged and captured Buckner's line of works on the Union left. It was then that, both Generals Floyd and Pillow fleeing, the former carrying his Virginia troops, Brig. Gen. Simon B. Buckner surrendered unconditionally.

Gen. Albert Sidney Johnston now realized that his only hope of success lay in concentrating his troops; otherwise Donelson might be repeated, and they be beaten in detail. He had able lieutenants sent to assist him—General Beauregard

[a] Battles and Leaders of the Civil War, vol. 1, p. 414.

and Major-Generals Van Dorn had arrived from Virginia and Bragg from Pensacola. He resolved at once to unite his forces at Corinth, Miss. To this place he transported those he had been able to collect at Murfreesboro, Tenn., whither he had fallen back from Nashville after the Donelson disaster.

At Corinth every available soldier was placed. Bragg brought 10,000 from Florida; Lovell sent 5,000 from Louisiana; Van Dorn was ordered from west of the Mississippi, though he did not arrive in time for the ensuing battle at Shiloh. Other troops from all directions were brought in, so that, April 3, the Confederates had 40,335 effective troops ready for battle.[a] It was a grand army; its principal officers were tried soldiers, in whom the Confederate authorities rightly had confidence, and this feeling was shared by all subordinates. All were ready to do or die; but they expected, as they hoped, that the Confederate Army would triumph. It was well organized, and a better officered army never marched to battle. Major-Generals Leonidas Polk, Braxton Bragg, and William J. Hardee commanded the three army corps. Brig. Gen. John C. Breckinridge (not a graduate) commanded the reserve corps. There were, besides, a few unattached troops. General Beauregard was second in command. Besides the graduates mentioned, there were present, commanding divisions, Brigadier-Generals A. P. Stewart, Bushrod R. Johnson, Daniel Ruggles, and Jones M. Withers. There appeared as colonels Charles Wickliffe, Joseph Wheeler, John C. Moore, John S. Marmaduke, Lucius L. Rich; as lieutenant-colonel R. H. Brewer of the cavalry, and, in the artillery, Capt. Melancthon Smith, subsequently Hardee's chief of artillery. Colonels Wickliffe and Rich were mortally wounded in the ensuing battle. Many of these subordinate officers afterwards rose to high command—Stewart and Wheeler to lieutenant-generals; Johnson, Withers, Marmaduke, and Brown to major-generals; Moore to brigadier-general, and Smith to colonel of artillery.

One of the pivotal battles of the civil war was now imminent. In pursuance of the plan necessarily adopted by the

[a] Battles and Leaders of the Civil War, vol. 1, p. 539.

National Government of seeking the enemy wherever the latter chose to locate himself, the Union army, first under Maj. Gen. Charles F. Smith, and later under Major-General Grant, had taken up position at Pittsburg Landing near Shiloh Church, on the west side of the Tennessee River, about 20 miles, by the road, in advance of Corinth. Upon the retreat of General Johnston after the surrender at Donelson, General Buell had occupied Nashville. He had about 40,000 good troops. His orders were to join General Grant in his advanced position; the combined force thence to advance against the enemy. It was vainly hoped that this could be effected before the Confederate troops could be concentrated at Corinth. General Johnston had two courses open: First, to fortify at Corinth and await attack; second, by moving swiftly before the junction of the Federal forces, try to beat them in detail. He chose the latter. In the nature of things the motives that impelled him never can be known; but, taking into account all the attending circumstances, his decision seems to have been a wise one. Confronted by a less determined opponent than the commander actually pitted against him, he might have been successful.

On the morning of April 6, 1862, the Union army at Pittsburg Landing numbered about 33,000 effectives; at Crump's Landing, on the same side of the river, Gen. Lew Wallace had 5,000, who arrived on the field of battle after dark that day.[a] It had been the habit of the Union troops to advance upon the enemy in position. Their attitude of attackers compelled them to do this. Covering by earthworks the front of lines taken up by those troops to ward off possible attacks was almost unknown. Hence it was in conformity with previous practices of Union troops that General Grant's army lay at Shiloh without such artificial cover, depending for security upon the vigilance of the outposts and the general state of preparedness of the troops to meet attack. The matter of throwing up temporary intrenchments was broached, but as the chief engineer reported that the proper line would run in rear of the position then occupied by many

[a] Battles and Leaders of the Civil War, vol. 1, p. 538.

of the troops nothing was done toward constructing them. The Federal commander did not, however, expect an attack. He imagined the Confederates would await his assaults behind elaborate and carefully prepared field works at Corinth.

The 33,000 effective men of the Army of the Tennessee at Shiloh were divided into six divisions and some unattached regiments.

The division commanders were Major-Generals John A. McClernand and Lew Wallace; Brigadier-Generals W. H. L. Wallace, Stephen A. Hurlbut, William T. Sherman, Benjamin M. Prentiss. Of these, Brig. Gen. William T. Sherman alone was a graduate; another, the brave Maj. Gen. Charles F. Smith, who had acted so distinguished a part at Donelson, had been taken sick just before the battle, and died April 25, 1862. The other graduates of this army commanding troops were Colonels J. J. Woods, Crafts J. Wright, and Charles Whittlesey, who were at Donelson; Thomas Worthington, and Alexander Chambers, the latter afterwards a brigadier-general.

On April 7 Gen. Don Carlos Buell's Army of the Ohio arrived. The division commanders were Brigadier-Generals Alexander McD. McCook, William Nelson, Thomas J. Crittenden, and Thomas J. Wood. The remaining division, commanded by Gen. George H. Thomas, was absent. Of the division commanders present, McCook and Wood alone were graduates. But General Buell had an eye to securing as many Regular troops as possible with his Volunteers, for disciplinary purposes. This brought more graduates in the subordinate grades than were found in the Army of the Tennessee, where, at this time, there was no organized fighting unit from the Regular Army. In Buell's Division, present on April 7 at Shiloh, were the following graduates, besides the division commanders mentioned: Colonels B. F. Smith, Jacob Auman, William B. Hazen, William Sooy Smith, Charles G. Harker, E. F. Townsend, and Maj. Stephen D. Carpenter; commanding light batteries of the Regular Artillery were Captains William R. Terrill and John Mendenhall.

Of these, William Sooy Smith, Auman, Hazen, Harker, and Terrill became general officers; and Carpenter, Terrill, and Harker died on the field of battle.

The Army of the Tennessee was in line in front of Pittsburg Landing. The right was 3 miles, the left $1\frac{1}{2}$ miles in front of the landing, with the flanks protected by streams that recent rains had rendered impassable. Thus attack could only be made in front. Sherman's Division, lacking Stuart's Brigade, held the right in the vicinity of Shiloh Church; Stuart's Brigade held the extreme left; McClernand's Division was next on Sherman's left, and Prentiss's Division on McClernand's left; Hurlbut was in rear of Prentiss; Charles F. Smith's Division, temporarily commanded by Brig. Gen. W. H. L. Wallace, was in reserve in rear of the right. Sherman's, Prentiss's, and Hurlbut's divisions were raw troops; the others, together with Lew Wallace's Division at Crump's Landing, were veterans for that period, having been in severe fighting at Donelson.

The onset of General Johnston's army, at first directed by that officer in person, carried back the Federals with varying fortunes to both sides, until at the close of the fighting of the first day their line was one mile or so in rear of its morning position. Here the Union troops inflexibly held their ground. Like McDowell at Bull Run, Johnston here found a Stonewall. On the left the two gunboats *Tyler* and *Lexington* aided to repel the assault. The enemy were defeated that night; the Union army held a stronger line than ever; Lew Wallace's Division arrived after dark and went into position. But this was not all. On the morning of the 7th Buell's army was present and therefore the desperate attempt, conforming to correct military principles, to crush Grant's army before Buell could join, had failed. To have continued the battle on the part of General Johnston's successor, Beauregard, would, under the circumstances, have been unjustifiable; and, commencing on the morning of the 7th, his principal solicitude was to extricate his army from its precarious position. This he accomplished.

The losses in this battle show the character of the fighting. On the Union side one-quarter of the effective strength were

killed and wounded in the Army of the Tennessee. The Confederates suffered a corresponding loss. The Army of the Ohio lost one-tenth of the effectives. Many officers of promise fell on both sides; but in the death of Gen. Albert Sidney Johnston the Confederates suffered a loss from which it seems their army in the West never recovered, and this for the reason that there apparently never was a leader thereafter in that section who had at once the full confidence of its people and of the Confederate government.

General Beauregard fell back and heavily intrenched at Corinth. Thither he was leisurely followed by General Halleck, department commander, who, after the battle of Shiloh, had taken the field in person. Pope, as has been seen, was brought from before Fort Pillow in the Mississippi River descent. With these and all other troops that could be collected General Halleck soon had not far from 100,000 men before Corinth trying to envelop the enemy. Beauregard, however, had no idea of having his army captured by the slow process of the siege. He abandoned the place, and May 30 the Union army entered Corinth without opposition.[a]

The seizing of the important Memphis and Charleston Railroad at Corinth and Memphis practically at the same time, in the advance of the Union military and naval forces on two of the main strategical lines of operation, with the destruction wrought upon that road from Corinth east, thereafter permanently depriving the enemy of its use to concentrate troops and carry supplies, and the placing the National armies securely in the midst of the enemy's territory, marked a decided advantage thus far gained by the former. Although it was several months before further important advance could be made along these lines, the Union armies never receded from the positions they thus had gained.

General Halleck contemplated pushing forward toward Chattanooga and Mobile, supposing that, the latter successfully accomplished, the opening of the Mississippi would necessarily follow.[b] Events determined otherwise.

Because of sickness, General Beauregard transferred the command of his army to General Bragg, and this was made

[a] The Civil War in America, Draper, vol. 2, p. 306. [b] Ibid., p. 310.

permanent. The new commander concentrated his troops at Chattanooga before Buell, whom Halleck had ordered to march there, could seize that important point. In justice to General Buell it should be remembered that his slowness of movement was caused by orders to repair the destroyed railroad as he advanced.

Important changes took place among the Union commanders. Major-General Pope was transferred to the Army of Virginia, to be succeeded in command of the Army of the Mississippi by Maj.-Gen. William S. Rosecrans. July 11 General Halleck was promoted to general in chief of all the armies of the United States, and repaired to Washington City.[a] This restored Maj. Gen. U. S. Grant to command of the forces at and in the vicinity of Corinth and along the railroad.

Major-Generals Earl Van Dorn and Sterling Price, who arrived soon after Shiloh from west of the Mississippi, confronted Grant, the former after September 11 being in chief command. In September Van Dorn was south of Grand Junction, Tenn., while Price was at Iuka, Miss. Corinth was between them. This seemed to be a dangerous separation of the Confederate forces, but was explained by the fact that Price was to move northeast into Tennessee to help Bragg should Rosecrans have moved to the assistance of Buell. Grant resolved to strike Price at Iuka while thus isolated. To this end Maj. Gen. E. O. C. Ord, U. S. Volunteers, was directed to move upon Iuka from the northwest, while Rosecrans, marching from his position south of Corinth, would attack from the southeast. Ord was not to attack until he heard Rosecrans's guns; but these he did not hear owing to the prevailing wind, and consequently did not join in the ensuing combat.

On September 19 a very severe action took place, in consequence of these movements, at Iuka.[b] The Federal troops, commanded by General Rosecrans, were organized into two infantry and one cavalry division. The division commanders, Brigadier-Generals D. S. Stanley and C. S. Hamilton and

[a] The Civil War in America—Draper, vol. 3, p. 311.
[b] Battles and Leaders of the Civil War, vol. 2, p. 734.

Col. J. K. Mizner, were all graduates, as also were Colonels J. L. Kirby Smith, Forty-third Ohio, and Alexander Chambers, of the Sixteenth Iowa.

The Confederates were organized into four infantry and one cavalry brigade, commanded, respectively, by Brigadier-Generals Henry Little, Louis Hébert, Martin E. Green, John D. Martin, and Frank C. Armstrong. Of these Hébert was the only graduate; Brig. Gen. Dabner H. Maury, commanding a division, another graduate, was confronting Ord and therefore not engaged. The fighting at Iuka was very hard, the brunt of it, as the losses show, falling on a single Union and two Confederate brigades. Commencing a short time before dark, it lasted long into the night. When the Federals moved to renew the attack, September 20, the enemy was gone.

Iuka was but the prelude to the fierce battle at Corinth, October 3–4 following.[a] Neither Van Dorn nor Price had taken part in the battle of Shiloh. In the east Lee had felt strong enough to invade Maryland, and Bragg had done the same thing in Kentucky, where his army now was. The forces under General Grant alone remained as far advanced in the Confederacy as their original movement had carried them, all others being taken to the rear by a counterstroke of the enemy. Van Dorn resolved that the condition of affairs in his front should no longer, if he could help it, form an exception to this general rule of Federal retrogression, and, by crushing Rosecrans at Corinth and seizing that important point, he hoped to do good service for the Confederacy and gather laurels for the army with the command of which he had been honored. He moved with confidence and attacked with vehemence, but found an enemy prepared for and equal to him. The actual forces engaged on both sides were nearly equal, each being in the vicinity of 20,000 men.

Van Dorn's Army consisted of three divisions and a few unattached troops. Two of these divisions belonged to Price's Army of the West, the same that were engaged two weeks before, at Iuka, and were commanded, respectively, by Brigadier-Generals Louis Hébert and Dabney H. Maury. The remaining division present, from the District of the Missis-

[a] Battles and Leaders of the Civil War, vol. 2, p. 737 et seq.

sippi, was commanded by Maj. Gen. Mansfield Lovell. Hébert had succeeded Brigadier-General Little, killed at Iuka, in command of the First Division Army of the West. Besides Van Dorn and the three division commanders, Hébert, Maury, and Lovell, the graduates present commanding troops were Brigadier-Generals John C. Moore, William L. Cabell, J. B. Villepigue, and Col. William H. Jackson, all commanding brigades.

Rosecrans's Army was in five divisions—three of the Army of the Mississippi, two of the Army of West Tennessee. The division commanders of the former were Brigadier-Generals David S. Stanley and Charles S. Hamilton, and Col. John K. Mizner; of the latter, Brigadier-Generals Thomas A. Davies and Thomas J. McKean—all graduates. The other graduates present commanding troops were Capt. G. A. Williams, with six companies, First U. S. Infantry, acting as heavy artillery, manning the siege guns, and Col. John V. D. Du Bois, commanding brigade.

The fighting was of the same character as at Shiloh, the Confederates, with persistency and reckless bravery, charging time and again, in places penetrating the town; but all to no purpose. The loss on both sides was great, especially among officers of high rank; but after maintaining the attack from 10 a. m. of the 3d until past midday of the 4th Van Dorn withdrew his shattered army, its object unaccomplished, therefore defeated. He was soon afterwards relieved by Lieut. Gen. John C. Pemberton, C. S. Army.

The issue at Corinth had been watched by both North and South with intense interest. This was more especially so perhaps at the North. The importance of the battle was out of proportion to the forces involved. The outcome of Bragg's invasion of Kentucky had not yet been determined adversely to him at Perryville, while in Virginia, after a sanguinary campaign, the Confederates were as far north as at its commencement. Corinth showed that at one vital point, at least, after having penetrated far into the enemy's territory, the Union armies could and would maintain themselves. Here, at this time, in this campaign were being developed the commanders who ultimately were to carry the Union standards to

victory. From the position held at Corinth and those immediately depending upon it as a vantage ground those generals, gaining with experience strength as commanders, were destined to move forward in a series of successful campaigns to the final triumph.

Fired with the idea of rallying around the Confederate standard its friends in Kentucky and Tennessee, General Bragg, August 28, 1862, moved north from Chattanooga.[a] It was hoped, also, that the Federal troops in advance of Shiloh would by this movement be compelled to retrace their steps. The result was bitterly disappointing to the Confederacy. By this time its sympathizers in these western States, as Lee found them in Maryland, were commencing to calculate the costs and also the chances of success, a mental and moral condition fatal to enthusiasm; and the Confederate ranks received recruits in numbers barely sufficient to make good the desertions. Again, though Buell marched back to meet the irruption, not one foot of territory in advance of Shiloh was abandoned by those armies whose blood had won it. In the meantime, however, General Bragg's advance was regarded at the North with deepest solicitude.

The right wing of the army of invasion, under Maj. Gen. Leonidas Polk, numbered 13,537; the left wing, under Maj. Gen. William J. Hardee, numbered 13,763; total, 27,300 effectives—that is, men who would take their places in line of battle. By the national system of computation this would mean 40,000 at least.

About September 12 Polk and Hardee united in the vicinity of Glasgow, Ky. Buell was now moving on Bowling Green from the south. At Mumfordville the question was presented to a council of Bragg's ranking generals whether he should continue moving toward the Ohio or take the offensive against Buell. It was decided to adopt the former course, Bragg remarking that the campaign must be won by marching, not by fighting. He pushed on to Lexington, Buell passing by his left flank, between his army and Louisville. Bragg was at Frankfort attending the inauguration of the secession governor of Kentucky when the booming of cannon

[a] Battles and Leaders of the Civil War, vol. 3, p. 660.

informed him of the enemy's approach. On October 8 the battle of Perryville was fought.[a] Here Bragg's marching campaign terminated except as he marched in retreat.

The Army of the Ohio, under command of Maj. Gen. Don Carlos Buell, was composed of three temporary corps, with eight divisions present. Maj. Gen. George H. Thomas was announced as second in command, an anomaly due perhaps to the circumstance that, September 29, he had been assigned to the command of that army by the President. This order was revoked only at his request. The corps were commanded—First Corps, Maj. Gen. Alexander McD. McCook; Second Corps, Maj. Gen. Thomas L. Crittenden; Third Corps, Brig. Gen. (and acting Maj. Gen.) Charles C. Gilbert. The divisions were commanded by Brigadier-Generals Lovell H. Rosseau, James S. Jackson, William S. Smith, Horatio P. Vancleve, Thomas J. Wood, Albin Schoepf, Robert B. Mitchell, and Philip H. Sheridan. Of these, Gilbert, Smith, Vancleve, Wood, and Sheridan were graduates, as also were Brigadier-Generals William R. Terrill and Milo S. Hascall and Colonels William B. Hazen, Charles G. Harker, and William P. Carlin, all commanding brigades. Other graduates commanding troops were Colonels Curran Pope and Buckner Board, Capt. John Mendenhall, and Lieut. C. C. Parsons of the regular artillery.

The Army of the Mississippi, under Maj. Gen. Leonidas Polk, was divided into right and left wings, Maj. Gen. Benjamin F. Cheatham commanding the former, Maj. Gen. William J. Hardee, the latter. There were, altogether, three divisions and twelve brigades. The divisions were commanded by Maj. Gen. Simon B. Buckner and Brigadier-Generals Daniel S. Donelson and J. Patton Anderson. All these officers except Cheatham and Anderson were graduates, as were also Brigadier-Generals A. P. Stewart, Thomas M. Jones, Bushrod R. Johnson, Colonels James A. Smith, and Joseph Wheeler, commanding brigades, with Col. Moses H. White, commanding the Thirty-seventh Tennessee.

As so often happened during the civil war, the heavy fighting at Perryville was done principally by a portion of the

[a] Battles and Leaders of the Civil War, vol. 3, p. 29.

Union army. In this instance McCook's Corps stood the brunt, having nearly four times as many killed and wounded as the other two corps together. Among others who fell was the lamented Brigadier-General Terrill, captain in the Regular artillery.

After the battle Bragg took up a position at Harrodsburg, near by, but the attack not being renewed, he retreated first into east Tennessee, thence to Murfreesboro. Polk and Hardee were rewarded for their services at Perryville by lieutenant-generalcies.

Maj. Gen. Edmund K. Smith had also entered Kentucky from east Tennessee at the same time with Bragg, but their armies were independent, and therefore the Confederates derived a minimum of advantage to be expected from their large force except on Bragg's hypothesis that it was a marching not a fighting campaign. Buell pursued as far as London, Ky., whence he turned, about October 20, and directed his columns, via Glasgow and Bowling Green, upon the ground in Tennessee occupied about six weeks before. While this was going on, he was, October 30, relieved of his command by Maj. Gen. William S. Rosecrans, fresh from Corinth.

The campaign of 1862 west of the Allegheny Mountains, was now essentially closed. The total of advantages were greatly in favor of the Union armies. West of the Mississippi, although the Confederacy had many troops there, its military power as a serious element to be reckoned with in the conduct of the war had virtually been eliminated. The Confederates retained the strategic line of the Mississippi from some distance below Memphis to Baton Rouge; but the river to those points from each extremity was firmly held to the Union, and from these secure bases preparations were being made for the complete opening of the river during the next campaign. Substantial progress had been made on the central strategic line. The enemy had been driven out of Kentucky, never in force to return. Nashville, important both strategically and politically, had been permanently occupied. The defending Confederate army on this strategic line was at Murfreesboro, far in rear of its position at the beginning of

the campaign, with not only a stronger enemy in front, but another in the vicinity of Corinth on its left flank. Moreover, the Tennessee and Cumberland rivers, now in possession of the Federals, had ceased to be only theoretically valuable. The Union armies had learned how practically to utilize them to greatest advantage in pushing troops and supplies far into the interior of the enemy's territory, and they continued so to be used until the end of the war. On the other hand, the seizure and destruction of so much of the Memphis and Charleston Railroad had deprived the Confederates of a most important line of communication, compelling them to long detours when sending troops and supplies between the Mississippi and their armies in the eastern theaters of operations.

General McClellan had, November 1, 1861, in the Army of the Potomac, 134,285 effectives with 300 guns. It had been his desire to move against Gen. Joseph E. Johnston, at Manassas, where the latter had about 55,000 effectives, not later than November 25, but he found this unadvisable. By February 1, 1862, the Army of the Potomac was increased to 190,806 effectives.[a]

Other important events had happened meanwhile. On January 13, 1862, Mr. Edwin M. Stanton was appointed Secretary of War. It was not long until evidence seemingly was given that the President or those who controlled his innermost military councils had not full confidence in the general in chief, and, to some extent at least, had determined to manage the conduct of the war independently of him. January 27 the President issued orders directing the general advance of all the armies on February 22 following—Washington's birthday. It already has been shown how this order was executed west of the Allegheny Mountains. January 31 the President further ordered that, having first amply provided for the safety of Washington, the Army of the Potomac should advance against the enemy at Manassas on or before February 22, details of the movement being left to the general in chief. March 8 the President organized the Army of the Potomac into four corps. The divisions of Banks and Shields formed

[a] The Civil War in America, Draper, vol. 2, p. 372.

an additional one. These corps were commanded by Brigadier-Generals Irvin McDowell, E. V. Sumner, S. P. Heintzelman, E. D. Keyes, and Nathaniel P. Banks.

On March 10 McClellan put the Army of the Potomac in motion against Manassas, only to find that the enemy had retired in the direction of Richmond. On the 11th McClellan was relieved of the command of all military departments except that of the Potomac. Whatever the real reason for this, the ostensible one was that, as he was taking the field in command of the main army of the Union, it was desirable that he be relieved from other similar responsibilities. It required two years of war, wherein hundreds of thousands of men in the aggregate contested on many fields, to evolve a commander who was to be intrusted with the active command at once of that army as well as of all others, thereby enabling the National forces to move with singleness of purpose and predetermined plan to the execution of their great work. Nor did this trusted general stand alone; other able commanders, his assistants, were evolved by the same process, whereas McClellan's principal lieutenants at the beginning of 1862 were inexperienced in high command; indeed, he was himself inexperienced.

More important measures than those here enumerated could not have been taken by the President by virtue of his constitutional power as Commander in Chief. If General McClellan was consulted, his wishes were not determinative; on the contrary, it was known that in some instances mentioned the measures taken had met with his decided disapprobation. The circumstance portended evil. It indicated a lack of that harmony in official circles which all realized was essential to success.

The time now had arrived for moving against the enemy in Virginia. The advance was to be directed against Richmond. The question of what line of operations should be taken became important. The President was willing to leave this to the military commander, on condition that such a force should be placed at Manassas and be left in the Washington defenses as would render the National capital secure.

An error was here committed of greatest moment. Having very properly ordered that the National capital should be rendered secure the President, or whoever had authority to speak for him, should have seen to it that the important matter was attended to in a manner wholly satisfactory to him before McClellan moved and while that general was in Washington to consult in person. The ordinary dictates of prudence counseled this. No other course could prevent misunderstandings. The troops thus to be retained, with the officers to command them, should have been designated and the President should have known who they were. Had this been done all cause for dispute as to matters of fact in connection with the safeguarding the city that subsequently arose, with deplorable consequences to the Army when in face of the enemy, would have been obviated. The incident, with its melancholy results, should serve as a warning to rulers and commanders in the future.

General McClellan chose to make Fort Monroe a base of operations, moving thence up the peninsula between the York and James rivers. March 17 the leading division embarked at Alexandria. McClellan arrived at Fort Monroe on April 2. On the morning of April 4 the movement up the peninsula commenced.[a] Maj. Gen. John B. Magruder commanded the Confederate forces at Yorktown and vicinity, and made such resistance that the advance of the Union troops was slow. On April 5, when the army had advanced to the enemy's entrenchments, McClellan received a dispatch from Washington detaching McDowell's Corps from his command, although two of its three divisions subsequently joined him before the heavy fighting in front of Richmond commenced. By May 15 the army had been assembled in the vicinity of West Point, at the head and south of York River. On the 18th the Fifth and Sixth Corps were formed and the army partially reorganized, all corps being reduced to two divisions each: Second Corps, Sumner; Divisions of Israel B. Richardson, John Sedgwick. Third Corps, Heintzelman; Divisions of Joseph Hooker, Philip Kearny. Fourth Corps, Keyes; Divisions of Darius N. Couch, Silas Casey. Fifth Corps,

[a] Battles and Leaders of the Civil War, vol. 2, p. 170.

F. J. Porter; Divisions of George W. Morell, George Sykes. Sixth Corps, Franklin; Divisions of William F. Smith, H. W. Slocum; all division, as well as corps commanders, being brigadier-generals. A depot of supplies was established at White House Landing on the Pamunkey, 25 miles or so by river above West Point.

To this time the York River had furnished the means of transport for troops and supplies, but the destruction of the Confederate ram *Merrimac* on May 11 placed at McClellan's disposal the more direct route of the James River for this purpose, to which river he at once resolved to transfer the line of operations and depot of supplies.[a] On the 18th of May, however, he received orders to extend a helping hand by the right to McDowell, who would advance from the direction of Fredericksburg. This McClellan continued to do until the night of the 27th of June, prepared every day to join with McDowell, or send to meet him should he advance, the army being in consequence astride the Chickahominy. At last, despairing of McDowell's arrival, he, under the heavy pressure that the enemy then was and had been bringing to bear upon his troops, cut loose on the night of June 27–28 from the Chickahominy and established his base on the James River.

The Confederates meantime had not been idle. Gen. Joseph E. Johnston was in command of the troops confronting McClellan after Magruder had been driven back, with Gen. Robert E. Lee as the military adviser of the Confederate president. General Johnston advocated concentrating before Richmond all troops that could be made available from the Atlantic coast. But General Lee, having regard for the great disinclination of the States involved to be denuded of their defenders, and considering also the admirable defensive nature of the country over which McClellan was compelled to advance, advocated at this time the assembling a lesser force, and his views prevailed.[b] The event showed that the lesser force was sufficient for all practicable purposes.

General Johnston first, and, after he was disabled May 31 by a wound, General Lee, sought to take advantage of the

[a] Battles and Leaders of the Civil War, vol. 2, p. 173. [b] Johnston's Narrative, pp. 113–115.

condition of the Union Army, divided by the Chickahominy, and afterwards while marching by the flank to the James. The first evidence of this was on May 31 when, Keyes's and Heintzelman's corps having crossed to the Richmond side, or right bank, of the Chickahominy, they were attacked with vigor, but Sumner's Corps having come to their assistance, the enemy were repelled.[a] This is known as the battle of Seven Pines. It was during its progress that General Johnston was wounded. General Lee, his successor, appeared to be occupied for some days following in getting his new command in hand. On the afternoon of June 26 Fitz John Porter's Corps, the Fifth, still on the north, or left, bank of the river, was attacked near Mechanicsville. The assault was renewed next day at Gaines's Mill. The fighting was very severe, necessitating the sending three divisions across the Chickahominy to Porter's assistance. Stonewall Jackson arrived in time to take part in the fighting of June 27, having eluded the Union commanders after a series of maneuvers and engagements in the Shenandoah Valley. But Porter by stubbornly holding his ground enabled McClellan to perfect all details and make all preliminary arrangements for the delicate and dangerous transfer of base now impending.

This transfer was successfully executed, and, judged solely as a military event, it must be conceded to have been a brilliant maneuver. No officer could have effected it under the circumstances actually existing who had not high qualities of generalship. Not only did it involve the flank march of a large army, with its trains and impedimenta, in presence of an able, vigilant, above all a fighting enemy, perfectly familiar with the country, but to be successful the James River must be reached, and in doing so a swamp directly crossed which the enemy probably regarded as impassable. It was not expected that this was to be done without fighting, but it was absolutely necessary so to fight that the main object, the establishment of the army on the James, should not be interfered with. All this was accomplished in spite of constant and vehement attacks, and July 1 the army was concentrated at

[a] Battles and Leaders of the Civil War, vol. 2, p. 178. Johnston's Narrative, p. 131.

Malvern Hill, with the trains at Haxall's in rear. The Confederates attacked at Malvern Hill on July 1, but were repulsed. During the seven days' fighting, from June 25 to July 2, inclusive, the National Army lost 1,734 killed, 8,062 wounded; the Confederates, 3,286 killed, 15,909 wounded. The forests of the peninsula were draped in mourning.

Days of distress those were, but also days of glory. The Confederates, not to be behind their antagonists of the same blood, now stepped forth to brilliant acts.

On June 26, while the Confederate army north of the Chickahominy, including Jackson's troops from the Shenandoah, were assailing Fitz John Porter, the Army of Virginia was created out of the army corps of McDowell, 18,500; Banks, 8,000; and Frémont, 11,500 men; 38,000 aggregate. Maj. Gen. John Pope was placed in command.[a] It was intended to operate this army so as to relieve McClellan by moving it toward Gordonsville and Charlottesville. McClellan's transfer to the James, however, rendered such movement on the part of the Army of Virginia useless. That change of base was, in this aspect, a marching away from what was intended by the Administration to operate as a reenforcement.

After McClellan was safely established on the James, and Lee had time to orient himself, the latter found his army between those of McClellan and Pope, which could not be united except by water transport. Quick of eye and swift of wing as the falcon he moved to crush Pope before McClellan could join him. The unfortunate lack of harmony between these two generals, rendering it seemingly advisable to appoint Halleck general in chief, favored Lee's movement. August 9 Stonewall Jackson's Corps, Ewell's, and Winder's divisions encountered Banks's Corps at Cedar Mountain, 8 miles south of Culpeper, and worsted it. Here Brig. Gen. Charles S. Winder, C. S. Army, a graduate, was killed.

Lee's decision accelerated the efforts being made at Washington, against McClellan's protest,[b] to move back his army to join Pope's. Halleck believed that this union could be effected on the line of the Rappahannock, which Pope was ordered to

[a] Battles and Leaders of the Civil War, vol. 2, p. 450. [b] Ib., vol. 2, p. 548.

hold. In fact, however, McClellan's troops and Burnside's from North Carolina (Ninth Corps), landing generally at Aquia Creek and Alexandria, could not be gotten up soon enough on the Rappahannock line, and Pope by so long adhering to it jeopardized the safety of his army, but succeeded in moving it back before Lee interposed between him and Washington. The Confederate commander, having the initiative and operating in a country familiar to him and amidst a friendly people, moved with greater celerity and certainty than his opponent. He also had the inestimable good fortune to have subordinates whose relations with him were cordial.

After various movements of the opposing corps, during which Stonewall Jackson, having penetrated to Manassas Junction in rear of Pope's army, destroying many supplies, escaped by accident happy to himself, General Lee's army and all the forces that it had been found practicable to collect under Pope confronted each other August 29 upon ground but slightly to the west of that of the battle of Bull Run, giving, in fact, the name "Second Bull Run" to the sanguinary engagement now fought on the 29th and 30th of August, which resulted in such discomfiture to the Union arms that Pope directed the withdrawal of his forces to a new position at and near Centerville. It was in front of this, near Chantilly, in a severe combat on September 1, the last contact of Pope and Lee's forces, that the brave Generals Kearny and Stevens, the latter a graduate, fell.

General Lee had not crushed Pope before the Army of the Potomac could join him, but he administered what was felt to be a severe defeat to the Union forces almost within sight of the Capitol building, and so near that the sound of the cannon reverberated through its halls.

This was the flood time of Confederate prestige. The true value of what had been accomplished for the Union arms west of the Alleghany Mountains was not yet fully appreciated. The National Administration and the nation overlooked for the moment what had been done there, and could think only of this menace to the national capital, within whose sight flaunted the standards of a victorious enemy whose mission it was to sever with the sword the Union of the States.

The hopes of the Confederate government had risen with the course of events. It no longer was to restrain the armies within its territorial limits, but they were to go forth to rally their friends in the border States, and, by renewed victories within the enemy's territory, secure a peace upon their own terms. September 5, the same day upon which Bragg entered Kentucky, Lee crossed the Potomac into Maryland at Point of Rocks.

Inscrutable are the edicts of fate. From that moment, as though governed by the laws of the physical world, the flood tide of rebellion's success commenced to recede.

General McClellan was never formally reinstated in command of the Army of the Potomac after it was taken from him to reenforce Pope.[a] But, as this army, as well as other troops, were brought within the sphere of his command under an order of September 2, intrusting him with the defense of Washington city, he marched forth at the head of all the troops assembled to turn back the tide of invasion.

The Federals, 14,000 strong, at Harpers Ferry were isolated. Lee sent Jackson against the place, which, with the troops, save 2,500 cavalry who escaped, was captured on September 15, Jackson instantly thereafter joining Lee. Meanwhile Lee, seeing the failure of his scheme of conquest, was moving to the higher Potomac fords to recross into Virginia. In doing this two sharp actions took place September 14, one at Cramptons Gap, where Howell Cobb resisted the Sixth Corps under Franklin, the other at South Mountain, where D. H. Hill and afterwards Longstreet disputed the passage through Turners Gap with Reno, Hooker, and Burnside. The National troops were successful in both cases, but mourned the loss of Maj. Gen. Jesse L. Reno, U. S. Volunteers, killed while leading his corps.

Pushing forward, McClellan, on the 15th, found the enemy in position behind Antietam Creek, a sluggish stream which enters the Potomac 8 miles above Harpers Ferry, his line in front of the town of Sharpsburg. Here on the 17th there occurred a battle characterized by desperate fighting on both sides. While it was in progress Jackson's troops arrived at

[a] Battles and Leaders of the Civil War, vol. 2, p. 551.

critical periods and helped Lee hold off the assaults of the National troops, but he was gradually driven back from the ground first occupied. On the 18th Lee retained his position unmolested. That night he retreated across the Potomac—a brilliant act, judged by its military features alone. But despite this and the other successful feat of arms against Harpers Ferry, the general results of all the engagements since two weeks before Lee crossed to the north of the Potomac had been decidedly favorable to the National arms and cause. The Confederate army trod the soil of Virginia on September 19, 1862, conscious of the fact, before in doubt, that the Potomac marked the northern limits of its theater of operations. "My Maryland," petite coquette, wooed by chivalry and song worthy the proudest days of knight errantry, first grew reserved, then turned with heartless indifference or cold calculation toward a hated rival.

During the ensuing six weeks both armies were refitting. McClellan then crossed the Potomac, directed on Gordonsville on Lee's line of communications, but having reached Rectortown en route he was relieved on the night of November 7 by Maj. Gen. A. E. Burnside.[a] General Lee had moved to anticipate McClellan at Gordonsville. The new Union commander now essayed to seize Fredericksburg, on the direct line of operations to Richmond, but Lee having seized Fredericksburg before Burnside could reach it, the two armies confronted each other there on the opposite sides of the Rappahannock.

It is unfortunate that political or other cognate considerations entered so largely into the determining of military movements and policies while General McClellan commanded, and so interfered, as alleged, with his military schemes that he never was able to exert his full powers as he wished, and consequently there exists no satisfactory military standard by which to judge of his ability. There are some facts unmistakably in his favor. He organized the Army of the Potomac, which adored him, and to this day its members, now rapidly being depleted, treasure his memory. He gathered its remnants together after the disaster of August 29–30 and,

[a] The Civil War in America—Draper, vol. 2, p. 468.

with other troops who never had been directly under him, organized them on the march and in two weeks gained a victory, not decisive but still leaning decidedly toward his side of the balance, over the recent victor at the second Bull Run. The change of base on the Peninsula has been commented on. All these facts stood immensely to his credit.

But there was another side to his character and military record. There was no excuse for his underrating the terrible earnestness with which the South conducted the war. Experience should have taught him that. It also should have brought home to him a consciousness of the only manner in which the war could be conducted successfully.

The sanguinary nature of the work to be done was well understood before he embarked for the Peninsula; the nation was reconciled to the sacrifice; the Administration was prepared to support him to the full extent of National resources, which would have proved sufficient; and, as the event demonstrated before the task was accomplished, generals had to come forth to conduct the war upon this basis. They were being educated for it in the less conspicuous if not less sanguinary campaigns of the west, where it was their good fortune, if they made errors of judgment, which ever is the lot of man, not necessarily to be deprived of their stations and novices substituted, but were permitted by their experiences, whether for good or evil, the better to prepare themselves for higher commands and larger responsibilities.

Burnside organized the army into three grand divisions, commanded by Sumner, Hooker, and Franklin.[a] December 13 he moved forward to attack the enemy entrenched on the heights of Fredericksburg. The plan was to throw Franklin's grand division, reenforced from Hooker's, in the center forward from the left, and seize the road in rear of the enemy's right flank, thus rendering the latter's position untenable; this accomplished, Sumner and Hooker were to advance upon the enemy's left.[b] Through a misunderstanding, Franklin's attack was not of the nature expected. When Sumner and Hooker advanced they were repulsed with great

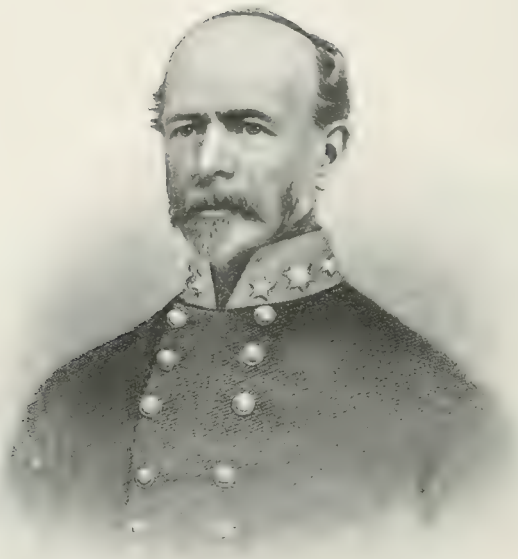
[a] The Civil War in America, vol. 2, p. 468. [b] Ibid., vol. 2, p. 470.

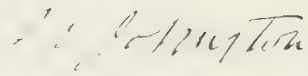
loss. On December 15 the army was withdrawn to the north side of the river, ending, essentially, the campaign.

Notice will now be taken of Stonewall Jackson's brilliant campaign in the Shenandoah Valley before attacking Fitz John Porter on the Chickahominy June 27, as previously narrated. By the division of the Confederate army after the battle of Bull Run the defense of the Shenandoah Valley was intrusted to Stonewall Jackson. As the Confederate army under Joseph E. Johnston fell back to the defense of Richmond against McClellan he detached Ewell to Jackson's assistance, who was to threaten Washington, thus preventing as much as possible the sending troops on McClellan's expedition. The ulterior part to be acted by Jackson's army was to be determined by the development of events. Jackson was encompassed by three Union corps, Frémont west of the Shenandoah Mountains, Banks near to, but south of the Potomac in the Shenandoah Valley, McDowell in the vicinity of Fredericksburg.[a] Turning first upon Frémont, while Ewell held Banks in check, Jackson drove him back in confusion; rapidly retraversing the Shenandoah Mountains, he fell upon a strong post at Front Royal, capturing it; directing his forces upon Banks at Strasburg, now weakened by the detachment of Shields to McDowell, advancing to join McClellan, he drove him north of the Potomac, and caused McDowell's recall. Turning south, he eluded the troops of Frémont and Shields until at Port Republic they converged upon him, when, turning upon them, he beat off his pursuers, and destroying the bridge, made good his escape. His infantry here received the name of "foot cavalry," and the Federal commanders were unmistakably given to understand that if they hoped to cope with such troops on anything like equal terms they must be able at least to march with equal facility. It was seen that capacity to manoeuver was still one of the essential qualities of successful armies.

In the organization of the forces which thus contended for mastery in Virginia in 1862, graduates held almost exclusively the higher commands. In the Army of the Potomac

[a] The Civil War in America, vol. 2, p. 301 et seq.





U. S. M. A., 1829

they commanded 5 of the 6 corps, 11 of the 12 divisions, 26 of the 36 brigades; also the cavalry, artillery, and engineers. Except in Frémont's, afterwards Sigel's Corps, the same proportion was found in the Army of Virginia. No graduates held high command in that corps. The Confederates followed the same rule, all commands, including divisions and upwards, being exercised by graduates; but in the brigades only 40 per cent were so commanded. Among those who fell on both sides were some of the choicest spirits that ever graced the Academy.

Such was the character of the fighting east of the Alleghanies in 1862, each army in turn doing its proportion of attack and defense. The losses in killed and wounded were doubtless about equal. They amounted to about 25,000 on each side. The dark winter of 1862–63 closed down with mourning in nearly every household in the land. At the front preparations were industriously being made to continue the struggle at the pleasure of nature's elements.

OPERATIONS, 1863.

The campaign of 1862 had convinced both parties that there could be but one test to the final issue, and this was which could wear the other out. And while each commenced to respect the other more, because of brave deeds and sufferings on the battlefield, there was no conciliation on the part of either toward the other regarding the principles maintained, but rather those principles were sanctified by the sacrifice which each had been called upon to make. Much, however, had been accomplished in clearing the doubts away which at first surrounded the conduct of the war. The leaders who were to command were coming now prominently to the front and their capabilities studied both by friend and foe. Regarding the main theaters of operations, there could be no essential future change. The Mississippi, the central, and the Virginia strategic lines, determined partly by the features of nature and partly by political policies, still remained those along which the armed hosts were to contend.

On the part of the Confederacy preparations were made for the ensuing campaign by placing Gen. Joseph E. Johnston in

command of all the armies from the Alleghanies to the Mississippi; in Virginia General Lee retained command; west of the Mississippi Holmes, with a large army, was isolated and unable to accomplish important results. The military preparations along the South Atlantic and Gulf coasts were wholly subordinate to those along the three main strategic lines.

Opposed to this front the National Government had, west of the Mississippi, Curtis and Schofield confronting Holmes. Grant at Memphis and Banks at New Orleans with the flotilla were to open up the Mississippi; Rosecrans was forcing Bragg south of Nashville; Burnside, soon superseded by Hooker, commanded the Army of the Potomac.

In this attitude the contestants prepared to renew the struggle. The Confederacy took no chances. It put forward for greatest responsibility only professional, tried, and approved commanders. Its political generals had long since ceased to receive consideration except for demonstrated military merit.

On the Union side, however, political generals were more favored, notwithstanding the fact the campaign just closed had demonstrated their unfitness to command against the leaders whom the Confederacy was putting in the field. Nothing was expected of them in the way of destroying the enemy's army. The Federal Administration seemed to have calculated that in order to secure the political influence supporting these officers it could afford to jeopardize to some extent National interests at comparatively unimportant places where they were assigned to command. And by placing under them subordinates who were competent it was hoped to reduce to the least possible the risks thus taken. This policy was continued until it broke down in spite of all the political support that could be given it. One by one these generals disappeared from active command, until, at the commencement of the final campaign, they all had been relieved.

The preliminary movements for the campaign of 1863 for the opening of the Mississippi River were taken in the fall of 1862. Lieutenant-General Pemberton, intrenched behind the Tallahatchie, opposed General Grant. Pemberton had a moderate force also at Vicksburg, which place the Federal commander planned to capture. To this end he dispatched

W. T. Sherman

U. S. M. A., 1840.

Maj. Gen. William T. Sherman down the Mississippi to attack the Confederate works at Chickasaw Bluffs, just north of that city, while Grant moved along the Mississippi Central Railroad to attack Pemberton in front.[a] In pursuance of this plan Sherman had four divisions in position in front of the Bluffs on December 29, 1862. They were commanded, respectively, by Brigadier-Generals A. J. Smith, M. L. Smith, G. W. Morgan, Frederick Steele. The Confederates in their front were commanded by Maj. Gen. Martin Luther Smith and Brig. Gen. Stephen D. Lee. The Federal attack failed, and, as the Confederates were being heavily reinforced, Sherman, with the approbation of Major-General McClernand, who had arrived with the President's authority to command the expeditionary force on the Mississippi, the troops were withdrawn, and moved against Arkansas Post, which was captured with its garrison.

The arrival of McClernand gave Sherman his first information of the condition of affairs on Grant's immediate line of operations and furnished the true explanation of the enemy in his front being so heavily reinforced. As General Grant had advanced Pemberton fell back and took up a defensive line behind the Yalabusha. Suddenly Van Dorn, commanding the Confederate cavalry, moving around Grant's left, captured and destroyed, on December 20, his depot of supplies at Holly Springs, Miss. The Federal commander at once saw that unless he could beat the enemy's cavalry and defend this long line of communication and supply he must solve the Vicksburg problem in a different manner. He took his measures energetically, abandoned the railroad, and moved his forces down the Mississippi River to join Sherman. This explained the reinforcement of the Confederates in Sherman's front at Chickasaw Bluffs.

The Confederates were greatly elated, and with reason. They had turned back the Federals on both lines, repulsing their attack on one. But the Holly Springs incident sank deep into the minds of the two principal Federal commanders, and the lesson it taught was subsequently turned by them to advantage. Prior to that time the proposition of living on

[a] Personal Memoirs U. S. Grant, vol. 1, p. 429.

the supplies the country afforded had not seriously been considered during the civil war. When, however, the enemy's territory was so abundantly stocked with food, and one's own depots so liable to destruction, why not discard depots and live off the country? As will be seen, this question, of the greatest military importance, was soon answered by Grant in his march to the rear of Vicksburg, and by Sherman two years later in his march from Atlanta to Savannah, Ga.

By War Department orders, December 18, 1862, the troops under General Grant were organized into four corps—Thirteenth, McClernand; Fifteenth, Sherman; Sixteenth, Hurlbut; Seventeenth, McPherson. General McClernand's Army of the Mississippi was merged into the corps to which he here was assigned.

General Grant assumed personal command at Youngs Point, La., January 30, of the forces menacing Vicksburg.[a] The problem was to secure a footing upon dry ground on the east side of the river from which to operate. After vainly attempting to find some vulnerable point through which the enemy's position in rear and north of Vicksburg might be penetrated, General Grant resolved to transfer his line of operations to a point below that city. Grand Gulf was selected as the new base of supplies, from which point one of Grant's corps cooperating with Banks would capture Port Hudson. This accomplished, the combined armies would move against Vicksburg.

The flotilla under Flag Officer D. D. Porter, convoying transports with supplies, ran past the enemy's land batteries. Captains and crews of the river steamers declining generally to take the risks involved in this, their places were filled by volunteers from the Army.

April 24 General Grant's headquarters were at Perkins's plantation, 12 miles below New Carthage, on the west bank of the river. Thence a movement was projected against Grand Gulf, but the enemy's batteries being strong and the gunboats unable to make any impression on them,[b] the flotilla ran past, as it had done at Vicksburg, and on April 30

[a] Personal Memoirs of U. S. Grant, vol. 1, p. 441. [b] Ib., p. 476.

McClernand's Corps and one division of McPherson's (Seventeenth) were landed at Bruinsburg, Miss., on the east side of the river. By May 7 the remaining division of the Seventeenth and the Fifteenth Corps under Sherman were united with the rest, and General Grant now had under him 33,000 troops.

Grand Gulf having been selected as the base of supplies for future operations, the first movement after the army was thoroughly established on the east side of the river was to capture that place. This was accomplished May 3, when news was received from Major-General Banks announcing that he could not arrive before Port Hudson for some days longer.

In consequence of this news the plan of campaign was immediately changed, Grant resolving to cut loose from the base at Grand Gulf, moving independently of Banks, attack the enemy's forces in rear of Vicksburg and assail that place from the rear.[a] A new base would meantime be established at some point above that city.

The resolution here taken and the manner in which it was executed indicated a high order of generalship. This will appear from two facts—first, the cutting loose an army from its base of supplies was at that time unknown during the civil war, and it so completely deceived Pemberton, who did not think such a thing possible, that in the subsequent operations the latter futilely wasted his substance, time, and army in movements against what he regarded as Grant's line of supply, but which line did not exist; second, the total number of Confederates at and in the vicinity of Vicksburg, or who quickly could be collected at Jackson or other available rendezvous close in rear, greatly exceeded the Federal turning army, thus rendering it necessary for the latter to interpose successfully between these superior but detached forces of the enemy before the latter could be united.

Not only, therefore, did the new plan of campaign indicate originality in conception, but also boldness and confidence—the attributes of conscious military mental power which experience had developed in the Federal commander. Napoleon's

[a] Personal Memoirs of U. S. Grant, vol. i, p. 491.

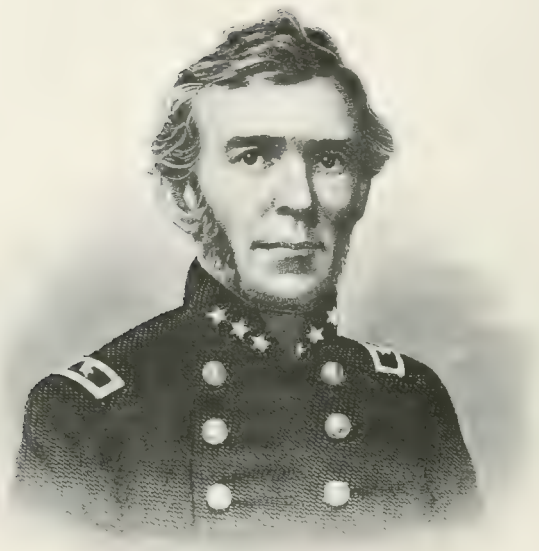
turning moving against Mack at Ulm, in 1805, was no more unexpected in plan nor daring in execution than that here undertaken; nor was it a greater surprise than the latter to both parties to the contest. In fact, Grant's resolution demanded the more nerve, as he was dealing with unknown elements far more than was Napoleon upon the particular occasion referred to. The character and real military capacity of the opposing Confederate commander, Gen. Joseph E. Johnston, emphasized all this. The civil war did not produce his superior in clearness of conception of what practically was needed, under any conditions that arose, to insure military success. Yet General Johnston was compelled to witness this Pearl of the West, the "Gibraltar of the Mississippi," as it was styled, Vicksburg, snatched with its garrison from his grasp, not because of overpowering Federal strength, but because of the unanticipated movements of the Union army and his inability to concentrate his own forces for attack.

The sequel seems to have been anticipated intuitively by both parties. The mind which conceived and successfully executed the campaign now resolved upon never for one moment sought rest until step by step, marked by successive victories, the armies of the Union were led in triumph, the enemy vanquished, two years later through the streets of the National capital.

The first step in the turning movement was the occupation of Jackson, the State capital, also an important military point. This was done on May 14, McPherson having a successful combat on the 12th at Raymond. Johnston's troops being driven off, the various columns now were directed on Vicksburg, before which they arrived on the 18th, having en route defeated the enemy, May 16 at Champion's Hill, and on the 17th at the crossing of the Big Black. A base of supplies was at once established on the east bank above the city.

While the latter engagement was in progress orders were received by General Grant from Halleck in Washington ordering him to desist temporarily from his Vicksburg movement, join Banks against Port Hudson, and after its capture recommence the movement against Vicksburg.[a] Compliance

[a] Personal Memoirs U. S. Grant, vol. 1, p. 524.



B. BRAGG.
U. S. M. A., 1837.

would have arrested at the full flood of success the most brilliant and one of the most important campaigns of the war. Believing that the general in chief had issued the order under a misunderstanding, and that he would not have given it had he appreciated the facts, Grant exercised his inherent discretion as commander on the spot and disregarded the orders.

After two unsuccessful assaults on May 19 and 22 Vicksburg was reduced by siege operations, surrendering on the 4th of July. Five days later the Confederate commander at Port Hudson also surrendered.

Thus complete success had attended the progress of the Union arms on one of the three main strategic lines of operation. It was effected by the Army and Navy united.

Independence Day, 1863, was indeed one of rejoicing to friends of the Union—Vicksburg captured with its army; Bragg driven south of the Tennessee; Lee rolled back shattered and defeated and shattered in his last attempt at invasion.

Besides the commanding general, there were present in the higher commands in this army a large proportion of graduates—Sherman and McPherson, two of the three corps commanders; McClernand was relieved June 18 by Maj. Gen. E. O. C. Ord, also a graduate. Of the ten divisions, four were commanded by graduates, namely: Maj. Gen. Frederick Steele, and Brigadier-Generals A. J. Smith, Eugene A. Carr, Isaac F. Quinby.

After Grant effected a landing at Bruinsburg, Gen. Joseph E. Johnston was ordered to command in person immediately against him.[a] Previous to that he commanded the departments in which General Bragg, Lieutenant-Generals E. Kirby Smith and Pemberton operated. Besides Johnston the graduates exercising principal commands in the Confederate Army under him around and in Vicksburg were Pemberton and 4 of the 5 division commanders, Major-Generals Stevenson, Forney, Martin L. Smith, Bowen, and 10 at least of the 26 brigade commanders, namely, Brigadier-Generals Tilghman,

[a] Johnston's Narrative, p. 172.

who was killed, Barton, Cumming, Hébert, Shoup, W. H. T. Walker, Maxey, Rust, and W. H. Jackson.

Banks organized his available force for moving up the Mississippi into 4 divisions, commanded by Maj. Gen. C. C. Augur and Brigadier-Generals Thomas W. Sherman, William H. Emory, Cuvier Grover, all graduates and tried soldiers.

Having pushed the Confederate General Taylor out of the way up Red River, General Banks, with assistance of the Navy, which had run up past Port Hudson, crossed the Mississippi on the night of May 23 and invested that stronghold, commanded by the Confederate Maj. Gen. Franklin Gardner.[a] General Johnston had ordered Gardner to abandon the place and join him. This order, however, came too late; besides, it was disapproved by the Confederate President. The defense was maintained stubbornly, the garrison enduring every privation, until forced to surrender on the 9th of July. This event not only at last opened the Mississippi, but liberated the Union troops just in time to beat off Taylor at New Orleans.

Besides the division commanders, all of whom were graduates, Brigadier-Generals Godfrey Weitzel and George L. Andrews and Col. Oliver P. Gooding, commanding brigades, were West Pointers. Banks also had with him what was an unusual sight in the West, some light batteries of the Regular Army, commanded by Captains H. W. Closson and E. C. Bainbridge and Lieut. Jacob B. Rawles.

The Union advance along the central strategic line was inaugurated by the battle of Murfreesboro, fought December 31, 1862–January 2, 1863. Both parties had been preparing for this event. President Davis deemed the Confederate affairs here to be so prosperous that, contrary to Gen. Joseph E. Johnston's views, he detached Stevenson's Division and one brigade of McCown's Division from Bragg to reenforce Pemberton in Mississippi. This was Rosecrans's opportunity, and accordingly, December 26, 1862, he moved out from Nashville against the enemy.[b] By an unusual coincidence both armies moved simultaneously to the attack, each intending first to

[a] The Civil War in America, Draper, vol. 3, p. 249.
[b] Battles and Leaders of the Civil War, vol. 3, p. 613 et seq.

strike the other with its own left. Bragg was the quicker, with the result that on the evening of the first day's fight Rosecrans had been driven back to the formation of a new line, where he was assailed in the most determined manner, but remained firm. January 1, 1863, both sides sought a breathing spell, but on the 2d Rosecrans, far from acknowledging defeat, felt out toward his left again, when a most sanguinary struggle with Breckenridge occurred, with results adverse to the latter. A storm prevented renewal of the battle on the 3d, and that night Bragg fell back to Tullahoma, carrying with him in this retrograde movement the impaired prestige of a defeated commander, notwithstanding his success in the first day's battle. So much was this felt to be the case that Gen. Joseph E. Johnston was ordered to make a careful inspection of the army to ascertain whether its confidence in Bragg had been shaken seriously. A report favorable to the commanding general was made, but spite of this Johnston was soon ordered to relieve Bragg, a change only prevented by sickness of the former.

The graduates present in the Union Army included the commanding general, McCook commanding the right wing and Thomas the center; R. W. Johnson, Sheridan, T. J. Wood, Horatio P. Van Cleve, commanding divisions; Stanley commanding the cavalry; Brigadier-Generals Milo S. Hascall and Joshua W. Sill, Colonels Carlin, Harker, Hazen, Lieutenant-Colonel Shepherd commanding brigades. There was also a small regular brigade in which were a number of graduates, including Majors A. J. Slemmer, James N. Caldwell, and Stephen D. Carpenter; Capt. Elmer Otis, of the Cavalry; Capt. John Mendenhall and Lieut. F. L. Guenther, Regular Light Artillery. Brigadier-General Sill and Major Carpenter were killed.

The graduates in the Confederate Army of Tennessee included the commanding general; Polk and Hardee, the corps commanders; Withers, McCown, commanding divisions; Donelson, Stewart, Bushrod R. Johnson, Pegram, commanding brigades, and Brig. Gen. Joseph Wheeler the Cavalry.

Rosecrans and Bragg remained facing each other, the latter lending a helping hand to Johnston in rear of Vicksburg by

detaching several thousand troops to the latter's assistance. This was inviting Rosecrans to attack, a contingency that Bragg seemed to anticipate. To distract attention the latter started Brig. Gen. John H. Morgan's cavalry north on a raid from which no part returned. Rosecrans now moved forward June 25, 1863, and, feinting with his right, turned all Bragg's fortified positions by the Federal left.[a] By this maneuver, ably conceived and skillfully executed, Bragg was thrown out of Tennessee upon Chattanooga. Thus far Rosecrans had decidedly the advantage of his opponent; but this forward movement had been so long delayed that before he could strike Bragg a blow at Chattanooga the troops which the latter had detached to Johnston in the rear of Vicksburg had rejoined. The opportunity of the Federal commander to strike his opponent when weakened had passed.

It is impossible to withhold admiration for the desperate energy of the Confederate military power at this time. With the Mississippi River permanently wrested, Lee's army sent reeling for the last time from the soil of the North, Bragg driven south of the Tennessee the grip of the enemy tightening on all sides, the South, far from despairing, simply aroused herself to greater effort and took new resolutions of sacrifice.

It now was to be determined whether Bragg should be compelled to continue his retrograde movement farther into the recesses of the Confederacy. Incidentally, the question as to who should hold Chattanooga was involved. Each side exerted itself to the utmost for the approaching contest. To Bragg were sent Buckner from East Tennessee, Longstreet from Virginia, Polk from Alabama.

Rosecrans, sending Crittenden forward, feinted by his left, while he moved Thomas and McCook out from the center and right, threatening Bragg's communications with Dalton and the South.[b] The movement involved great danger, in that Crittenden, Thomas, and McCook could not move laterally to each other's support, owing to mountains between them. Bragg abandoned Chattanooga September 8, threatened by the movement of Thomas and McCook, not, however,

[a] The Civil War in America—Draper, vol. 3, p. 61. [b] Ib., p. 64.

to flee, but to concentrate for battle.[a] The Union generals, alarmed at the resistance they were meeting, likewise commenced to concentrate. On the night of September 18 Rosecrans's army was near Rossville, west of Chickamauga Creek, McCook on the right, Crittenden in the center, Thomas on the left.

The battle of Chickamauga began on the morning of September 19, Bragg attacking and attempting to interpose between Rosecrans and Chattanooga by turning the Union left. Polk commanded the right. Polk's effort to turn Thomas's left failed. On the night of the 19th Longstreet arrived. He was assigned to command of the Confederate left wing. The attacks on the Union left, renewed on the 20th, failed to drive Thomas from his position. To maintain this, however, required heavy reenforcements from Rosecrans's right and center, which finally were driven back in confusion toward Rossville and Chattanooga. The utmost efforts of Polk and Longstreet were now combined against Thomas, but in vain. In allusion to this that general was thereafter called the "Rock of Chickamauga." That night he retired deliberately to Rossville, where, on the 21st, he again offered battle. This not being accepted, he drew off into the defenses of Chattanooga.

Rosecrans's army consisted of three army corps, an extemporized reserve, and a cavalry corps, the whole including 14 divisions and 36 brigades. The graduates present in command of corps were Thomas, McCook, and Granger; of divisions, Baird, J. J. Reynolds, R. W. Johnson, Sheridan, Thomas J. Wood, Van Cleve, and Crook; of brigades, Carlin, Harker, and Hazen.

Bragg's army, composed largely of detachments from other armies, was not systematically organized into corps. Although there were present Polk's, D. H. Hill's, Longstreet's, Forrest's, and W. H. T. Walker's (reserve) corps, there were troops present not belonging to either. There were 15 divisions and 46 brigades. The graduates present included the commanding general, the wing and corps and cavalry commanders, except Brig. Gen. N. B. Forrest; of division commanders,

[a] The Civil War in America—Draper, vol. 3, p. 95.

Major-Generals Stewart and McLaws, Brigadier-Generals Bushrod R. Johnson and Pegram; of brigade commanders, Brigadier-Generals Deshler, Helm, Gracie, Bryan, Davidson. Of these, Deshler and Helm were killed. Col. E. Porter Alexander and Maj. Melancthon Smith, also graduates, were present with the Confederate artillery.

This shows how death, wounds, and disease were making themselves felt in thinning out the limited class of graduates available for high command. They had, however, done a great and indispensable work in training in practical details of military life a class of officers drawn from either the ranks of the Army or from civil life, to take the stations for which the smaller number of graduates could not continue to provide. There was another important consideration in this connection: these subordinate commanders, taught thus their first lessons in military duty by graduates, were apt, ardent, brave, receptive to warlike instruction. The seed sown by the Military Academy fell upon good ground. Division and brigade commanders and subordinates to them were being thus educated who were abundantly capable of taking the places of the graduates who had instructed them. These campaigns, like those of the First Empire, were developing a breed of first-class soldiers. It would not have been conducive to true military interests to deny to officers so instructed the stations they had fitted themselves for in campaign and battle. No one was more tenacious of this principle than graduates themselves. The policy therefore was adopted, as the war progressed, of rewarding conspicuously meritorious subordinate officers, no matter what their antecedents, with any command which they had been so fortunate as conspicuously to demonstrate they were capable of exercising.

The Confederates had reenforced Bragg to the utmost. Their interior lines greatly facilitated this. They were successful at Chickamauga, and the only question that soldiers have asked is why Bragg did not try to render victory more complete.

The star of the Confederacy, like the meteor's blaze, dazzled for a moment only to disappear.

Thomas had not yet moved from Rossville, where he

turned and defied the Confederates to renewed combat, when orders were issued moving the Eleventh (Howard's) and Twelfth (Slocum's) corps, the whole under Hooker, from the Army of the Potomac to Rosecrans's assistance.[a] In seven days these troops, having traveled 1,192 miles, were established on the Tennessee in the vicinity of Stevenson and Bridgeport. This, however, was but a preliminary movement on the part of the National Government. General Grant was then at New Orleans, where he had hoped by concerting with Banks a movement against Mobile to take the pressure from Rosecrans. On October 16 he was ordered to repair to Chattanooga. On the 19th General Thomas was ordered to relieve General Rosecrans. In response to a dispatch from General Grant to hold on at all hazards, Thomas replied laconically, "I will hold the town till we starve." The 23d saw General Grant at Chattanooga. By the 27th he had established secure communication with Nashville by moving against and capturing the enemy's position south of the river above Bridgeport. The prompt and effective manner in which this was done was characteristic of the general now in command. It was the first in a series of movements to extricate the Army of the Cumberland from a state of siege. The entire confidence with which this first step was undertaken presaged well for the future. Its success showed that both officers and soldiers were no longer novices.

November 14 Gen. William T. Sherman arrived, followed by the Fifteenth Army Corps and Brig. Gen. John E. Smith's Division of the Seventeenth Corps, all which troops Grant had ordered to join Rosecrans in September from the Army of the Tennessee.[b]

General Grant only awaited the placing of troops under Sherman on his left, south of the Tennessee River, to commence the forward movement. The plan of battle was to attack both flanks of the enemy, piercing Bragg's center when that was sufficiently weakened by detachments to support the right and left.[c] Sherman was over the river early on November 24, when both, he on the left and Hooker on the right, advanced. The battle recommenced on the 25th, Hooker

[a] The Civil War in America, Draper, vol. 3, p. 78. [b] Ib., p. 81. [c] Ib., p. 87.

sweeping forward, but Sherman, vigorously opposed, made less progress. The fight in Sherman's front, however, indicated what was desired—that Bragg's center had been weakened. Thomas now moved forward in the center, piercing the enemy's line—and driving him from the field. Pursuit was stopped at Ringgold, and Sherman hastily sent off to rescue Burnside, beseiged by Longstreet at Knoxville. This signal victory enhanced General Grant's reputation as a skillful commander, and was soon rewarded by a lieutenant-generalcy. Soon after he was appointed general in chief of the armies of the United States.

Bragg made the capital mistake just before the battle of weakening his army by detaching Longstreet's Corps and one other division to Knoxville. He staked all on the chance of Burnside succumbing and lost. It was wrong in principle. The military commander should make the greatest effort he possibly can at the main point, knowing that victory there means victory in effect everywhere, while defeat there carries with it defeat at all collateral points. Bragg's fate illustrated the results that may follow a disregard of this.

The Confederates fell back to Dalton and vicinity, where, under orders from Richmond, Gen. Joseph E. Johnston relieved Bragg of command of the Army of Tennessee, December 27.[a] Preparations on both sides were commenced for the grand campaign on the central strategic line which it was seen must follow in the coming spring. Bragg was placed on duty at Richmond as chief of staff to President Davis.

The characters of the two had many features in common. Both were absolutely devoted to the cause in which the Confederacy was embarked. Their views on all public and military questions apparently were identical. Both were better understood in the U. S. Army, where they had served as young officers, than anywhere else. Both had ability, Davis superior to Bragg; but the latter's intensity of purpose, and self-abnegation in the cause in which he had staked his fortunes and his life created between them a bond of sympathy and mutual appreciation.

[a] Johnston's Narrative, p. 261.

The friends of the Union had every reason to feel encouraged with the results of the campaign of 1863 in the west. One of the three great strategic lines of operation had been reduced into permanent possession of the National forces; on the other the Confederates had been beaten back far into the interior of their own territory, while Chattanooga, an immense fortress on this line, grasping an important railroad, permanently held at last by the Union troops, projected as a salient far into the enemy's country.

On the third strategic line fortune had favored one, then the other of the armies which contended for mastery; and, while the actual geographical position held by each at the end was about what it was at the commencement of the campaign, the sum total of advantages gained leaned heavily to the side of the Federals. The Army of the Potomac had triumphed over its enemy, not in territory won toward the Confederate Capital, but in throwing back, defeated, and in utter confusion the legions of the Confederacy in their last desperate and despairing effort at northern invasion.

Maj. Gen. Joseph Hooker relieved General Burnside of command of the Army of the Potomac January 26, 1863.[a] His problem was to destroy Lee's army without uncovering Washington. His army was soon organized into seven corps: First, Reynolds; Second, Couch; Third, Sickles; Fifth, Meade; Sixth, Sedgwick; Eleventh, Howard; and Twelfth, Slocum. Stoneman commanded the cavalry, in four divisions, under Pleasonton, Buford, Averell, and Gregg. Lee had Stonewall Jackson's Corps, four divisions, under A. P. Hill, Rodes, Colston, Early, and two divisions of Longstreet's Corps under R. H. Anderson and McLaws. The cavalry was under J. E. B. Stuart, the artillery under Brig. Gen. W. N. Pendleton. Every officer named in both armies, except Rodes, Colston, and Sickles, was a graduate.

Fredericksburg had shown the dangers attending a direct attack on the enemy awaiting behind intrenchments, and General Lee had greatly strengthened these. Hooker's army largely outnumbered Lee's, and the former determined, by moving around the latter's left and rear, to flank the enemy,

[a] The Civil War in America. Draper vol. 3, p. 105.

compelling him to come out from behind his works and either precipitately retreat or give battle in the open.[a] It is seldom that a plan so excellent as this failed so utterly in the execution.

April 12 Stoneman started on a raid from the Union right against the railroads in the Confederate rear, but the rains rendered it abortive. The turning movement by the Federal main army began on April 27, when the three corps of Meade, Howard, Slocum, crossing both the Rapahannock and the Rapidan, wheeled toward Lee's rear, being joined in succession by Couch, Sickles, and Reynolds across United States Ford just below the junction of the two rivers. Sedgwick, assisted at first by Sickles and Reynolds, acted as a containing force to hold Lee to his intrenched position. By the afternoon of May 1 the turning corps were in position in Lee's rear, and communication with Sedgwick was established over Banks Ford. At this time all had gone well. The Federals had won in the first maneuver, and were advancing as prearranged to the attack. At this point Hooker was seized with doubts, the forerunner of disaster. The advanced corps had cleared the Wilderness, but, apprehensive that the difficulties of the terrain would prevent him from supporting them, he ordered them to retreat, and thus in a twinkling, and against the remonstrances of his advanced commanders, he changed the attitude of his splendid army from one of attack to defense. Although his forces greatly exceeded Lee's, he thus threw away the morale of assailant and gave it to the enemy.

General Lee acted with confidence and judgment. Leaving 10,000 men under Early to confront Sedgwick's Corps, he moved with the rest against Hooker. Here he divided his forces. Retaining himself scarcely enough to amuse the Federal left, he sent Stonewall Jackson, with A. P. Hill, Rodes, and Colston, to make a complete circuit of the Federal front. Howard's Corps, on the extreme Federal right, attacked by surprise, was completely overthrown. But in doing this the great soldier and leader, Stonewall Jackson, fell, dying on the 10th of May following. A new front drove back the

[a] The Civil War in America, Draper, vol. 3, p. 107.

Confederates and occupied the ground from which the Eleventh Corps had been driven.

On the 3d of May, while the battle was raging, Hooker, struck by flying timber impelled by a cannon shot of the enemy, was rendered insensible. Couch failed to assume command, with the result that the Federal center was broken, while the corps of Meade, Howard, and Reynolds lay at hand idle. At this juncture Sedgwick, advancing through Fredericksburg, menaced Lee's rear. The latter's success against Hooker enabled him at once to detach troops to Early's assistance against Sedgwick. The latter was roughly handled, but escaped by recrossing the Rappahannock on the night of May 4–5 at Banks Ford. Lee advanced again against Hooker on the morning of May 6, only, however, to find him gone, he having withdrawn the night before. Stoneman meantime had renewed his attempts with the cavalry on the Confederate rear, penetrating even to the works defending Richmond; but the damage wrought to bridges, railroads, etc., was so slight that traffic was scarcely interrupted.

The graduates present on the Union side included the commanding general, 5 of the 7 corps, the cavalry and the artillery commanders, 15 of the 24 division commanders, and 21 of the 66 brigade commanders. On the side of the Confederates the graduates embraced the commanding general, all army corps, the artillery and the cavalry commanders, 5 of the division commanders, and 5 of the 28 brigade commanders. In both artilleries the graduates were largely represented, especially among the higher officers.

It was only natural, with the experiences of Fredericksburg and Chancellorsville to animate them, that the Confederate administration again should aspire to dictating a peace upon Northern soil. If what the Union army had done in those battles demonstrated the best that it could do, the Confederate hope was by no means unreasonable. It was expected also that the opponents of the National Government in the free States would prove efficient allies of the Southern armies. At this time none of the fortunate events had transpired on the other two strategic lines which later during the campaign gave such a fortunate turn to the efforts of the Union armies

operating thereon. Whatever might happen elsewhere, it certainly looked, on the surface of things, as though the Army of Northern Virginia, under Lee's command, could select its own path to final victory. How superficial this view! How soon that gallant army again was to realize the vital difference between defending its own well-known territory, close to friends and its base of supplies, and marching into a hostile country where all these its habitual advantages now were operating in favor of the enemy.

Having resolved upon invasion the Confederate administration moved with habitual energy. The army was organized into three corps: (1) Longstreet, divisions, Pickett, McLaws, Hood; (2) A. P. Hill, divisions, R. H. Anderson, Heth, Pender; (3) Ewell, divisions, Early, Rodes, E. Johnson. Stuart commanded the cavalry. Pendleton the artillery.[a]

The movement commenced on June 3, by way of Culpeper Court House, Hill's Corps being left as a screen in front of Hooker. On the 13th the latter moved north to protect Washington. Hill then joined Lee, who crossed the Potomac on the 26th at Williamsport and Shepardstown, directed on Chambersburg, Pa. Hooker crossed at Edward's Ferry that day, directed on Frederick, Md. On the 28th he was superseded by Maj. Gen. George G. Meade, commanding the Fifth Corps.[b] The army corps continued to be commanded as under Hooker, except that Sykes succeeded Meade in the Fifth and Hancock had the Second instead of Couch.

Meade acted with promptness, selecting a battlefield on Pipe Creek, 15 miles southeast of Gettysburg, Pa. But on July 1 the opposing forces came into collision at Gettysburg; a very heavy battle was fought, Major-General Reynolds was killed, and affairs assumed such shape that each army commander felt impelled to hurry forward all his troops to sustain those who accidentally had thus become engaged.

The great preponderance of the Confederates forced the Union army on the defensive on July 1, and that status remained after this preponderance was reversed throughout the battle. The situation of Lee's army was such that he

[a] The Civil War in America, Draper, vol. 3, p. 126.

[b] The Civil War in America, Draper, vol. 3, p. 132. Battles and Leaders of the Civil War, vol. 3, p. 241.

was compelled to try conclusions with Meade, and the sooner the better for the Confederates. This threw upon him the burden of attack. The line occupied by Meade's army was in many ways admirable for defense—one part could support another, the flanks were strong, not easily assailed. Here during the 2d and 3d of July the battle continued to rage. Both sides were veterans from the commanding generals down, and all understood the tremendous consequences of the result. It may be said, too, that each side measured up fully to the highest type of soldierly conduct, and each proved worthy of the uniform it so proudly wore. At 3 p. m. on the 3d Pickett's division of Longstreet's Corps was launched against the center of the Union line. The slope up which it came was like a glacis. The head of the attacking column reached the opposing forces, a hand to hand conflict momentarily ensued, when all that was left—a mere remnant—of Pickett's division was hurled back defeated. Pickett's division was supported on the right and left, but the task set it was impossible of accomplishment. This was the supreme effort of Lee's army. Had it been twice as strong the only consequence, seemingly, would have been defeat twice as great, for Meade had at hand the necessary troops.

General Lee promptly accepted the consequences of defeat. His solicitation now was to recross the Potomac in safety. Preparations for this were at once begun, and on the morning of the 5th of July the Confederate army was in full retreat.

The Union army at Gettysburg was essentially the same as that which two months before had fought at Chancellorsville. All the army corps except the Third (Sickles's) were commanded by graduates, as were 15 of the 22 divisions, and 17 of the 58 brigades. The Federal light artillery, which played a great part in this battle, was also largely officered by graduates.

On the Confederate side all the corps, 8 of the 9 divisions and the cavalry, and 8 of the 39 brigades were commanded by graduates, who also, as in the Federal Army, largely officered the Confederate light artillery, especially in the upper grades.

Each army lost some of its most conspicuous graduates. On

the Union side this list included Maj. Gen. J. F. Reynolds, commanding the left wing, and who but recently had declined command of the Army of the Potomac; Brig. Gen. Stephen H. Weed, Col. Patrick K. O'Rorke; on the Confederate side Maj. Gen. William D. Pender and Brig. Gen. Richard B. Garnett. Pickett's Division acted a spectacular and heroic part in this battle, yet it lost in killed less than either of the other two divisions of Longstreet's Corps. This shows the sanguinary nature of the fighting generally in this great battle.

During the campaign of 1863 the Confederates were virtually eliminated from Missouri and Arkansas,[a] Lieut. Gen. E. Kirby Smith, at Shreveport, La., maintaining the only real army in that extensive section. Van Dorn had been succeeded in the Trans-Mississippi by Maj. Gen. T. C. Hindman; he, by Maj. Gen. T. H. Holmes, and he, finally, by Lieut. Gen. E. Kirby Smith. Hindman had lost the severe battle at Prairie Grove, northwest Arkansas, December 7, 1862; Holmes had Arkansas Post wrested from him January 11, 1863, and was repulsed in an attack on Helena July 4, while September 10 Major-General Steele finally drove Price out of Little Rock. Thenceforth the Trans-Mississippi Department cut small figure in the civil war; the only exception being Banks's ill-starred expedition up Red River from New Orleans early in 1864. The ordering of Van Dorn to reenforce Johnston early in 1862, although conforming to correct military principles, was not unnaturally interpreted by the Confederate party in Missouri and Arkansas as an abandonment of that department. This, in effect, was what it implied, and almost of necessity was it so; if the Confederates triumphed at all it could only be through victories gained at the vital strategic points; this meant concentration of their troops at the latter, even at seeming sacrifice of less important territory. But the inevitable result was that even Confederate sympathizers, feeling themselves neglected by their friends, turned a more willing ear to the overtures of the Union authorities. The graduates who acted important parts in these transactions were, in the Federal Army, Major-Generals Samuel R. Curtis and J. M. Schofield, commanding

[a] Battles and Leaders of the Civil War, vol. 3, p. 441 et seq.

the Department of Missouri; Maj. Gen. William T. Sherman, Maj. Gen. Frederick Steele, Brig. Gen. John W. Davidson, and Col. William McE. Dye; on the part of the Confederates, of Lieut. Gen. E. Kirby Smith, Major-General Holmes, Brigadier-Generals J. S. Marmaduke, Lucius M. Walker, and Col. James Deshler.

Military events of importance had taken place during 1863 immediately on the Atlantic coast. After the repulse of the naval attack at Charleston Harbor in April a combined land and naval attack was made with more success. Brig. Gen. Quincy A. Gillmore relieved Major-General Hunter of command there June 12, 1863. Admiral Dahlgren succeeded Du Pont in command of the naval force. Gillmore's work was largely in the nature of regular siege operations, resulting, September 7, in the capture of Fort Wagner, on Morris Island. In the meantime Fort Sumter was reduced to a most dilapidated condition, and only was maintained by the Confederates as an outpost to protect the channel obstructions near. On the night of September 8 Admiral Dahlgren ordered an assault on this fort by a landing party of about 400 men; but after more than a quarter of the whole number were killed, wounded, or captured the attack was abandoned,[a] and thereafter the combined land and naval forces contented themselves with maintaining Charleston in a condition of strict blockade. The graduates in principal command, besides and under Gillmore, were Brigadier-Generals Truman Seymour, Israel Vogdes, and George H. Gordon; with the Confederates, General Beauregard, commanding, and Brigadier-Generals R. S. Ripley and N. G. Evans.

OPERATIONS, 1864.

The campaign of 1864 opened under brighter auspices for the Union armies than any previous one. This was due to the generally favorable issue of the campaign of 1863, in spite of Chancellorsville and Chickamauga, but more especially to the fact that President Lincoln at length had placed the entire conduct of military affairs under one commander, whose previous career inspired confidence. Moreover, this

[a] Battles and Leaders of the Civil War, vol. 4, p. 65. The Civil War in America Draper, vol. 3, p. 184.

was not a pro forma conferring of military authority. It was genuine, hearty, full, and placed in the discretion of the new commander of the armies authority to settle the plan upon which all should move for the accomplishment of the sole object in view—destroying the armies of the Confederacy. For the first time during the civil war the general in chief was given power commensurate with his office.

March 1, 1864, the grade of Lieutenant General was recreated by the National Government; on the 9th a commission thereto was conferred upon Maj. Gen. U. S. Grant,[a] and on the 11th orders were issued placing him in command of all the armies. At the same time he was given to understand that all the resources of the Government—troops and supplies—were placed at his disposal to crush the military power of the Confederacy.

All his previous service having been west of the Alleghenies, it was his first wish to continue to direct affairs from there, leaving the able and experienced officers who commanded in the Army of the Potomac to contend against their old-time antagonist. A study of the condition of things at the seat of government led him to decide upon a different course. He became convinced that he must take his station either at the national capital or near it, to prevent interference with his plans.[b] This led to his joining the Army of the Potomac, being succeeded in command of the Military Division of the Mississippi by Maj. Gen. William T. Sherman, the latter in the Department and Army of the Tennessee by McPherson, and he in the Seventeenth Army Corps by Maj. Gen. John A. Logan.

The main field of military operations now was more limited than before. The great armies of the Confederacy under its ablest generals were reduced to two, lying upon the central and the Virginia strategic lines, and against these the mighty efforts of the Union armies under Grant and W. T. Sherman were to be directed.

There were other movements of Federal troops, but they were wholly subsidiary to and in aid of the main ones.

[a] Personal Memoirs of U. S. Grant, vol. 2, p. 110. [b] Ib., p. 140.

General Gillmore, commanding the Department of the South, sent an expedition into Florida under Brig. Gen. Truman Seymour, U. S. Volunteers. This command, of about 5,000 men, was ambushed at Olustee, February 20, and badly defeated.

West of the Mississippi a more pretentious expedition was directed by Banks against E. Kirby Smith up Red River. The real purpose of this expedition, which Banks disapproved of, was for political effect, having an eye to French intrigues in Mexico. Steele was to cooperate from the direction of Little Rock. Sherman from Vicksburg lent Banks 10,000 men under A. J. Smith. On April 8 at the battle of Sabine Cross-roads the Federal troops were worsted; the expedition proved a failure not only politically but militarily, the latter being a contingency that the Federal Administration had not deemed possible; Steele was compelled to retreat to Little Rock in face of a superior enemy thus rendered available. Maj. Gen. E. R. S. Canby, U. S. Volunteers, relieved Banks, and at once started the Nineteenth Army Corps, under Brig. Gen. W. H. Emory, to join the forces operating against Richmond, Va.

Lieut. Gen. E. Kirby Smith was made a full Confederate general for his success in repelling Banks.

In February Gen. W. T. Sherman moved east from Vicksburg against Meridian, Miss., an important railroad center. Brig. Gen. William Sooy Smith cooperated from Memphis. Sherman had Hurlbut and McPherson, with 20,000 men. Smith had 7,000 cavalry. Sherman was eminently successful, breaking up the railroads by which the Confederates in the South were supplied, and enabling him to send 10,000 troops, as previously mentioned, to Banks and another 10,000 to Chattanooga. Smith was defeated at Okalona, Miss., and did not reach Meridian.

In August, 1864, a combined land and naval expedition, the troops under Maj. Gen. E. R. S. Canby, the navy under Rear-Admiral D. G. Farragut, captured and occupied the Confederate forts guarding the entrance to Mobile Bay. This closed the only port in the Gulf at this time open to blockade runners. It had been hoped, and Grant's plan of campaign

provided, that Banks, while Grant and Sherman were moving forward, should attack Mobile with 30,000 men. This not only on account of the importance of Mobile itself, but to act as a powerful diversion. The Red River expedition, however, confirming results of previous experience, showed that Banks could not command an army. His relief by Canby, and the transfer of the Nineteenth Corps following this, changed the plan as to Mobile to the simple capture and occupation of the forts guarding the entrance to the bay.

Maj. Gen. B. F. Butler commanded the Army of the James, with headquarters at Fort Monroe. His inability to command troops in action had not yet been sufficiently demonstrated to overcome the political power that supported him. Gillmore was sent to him with 10,000 men from the Department of the South. It was expected that he would attempt to capture Petersburg, Va., making the James River his line of water operations, while Grant, moving directly against Lee's army, advanced upon Richmond from the front.

Maj. Gen. Franz Sigel was to operate in Virginia to the west of Grant and strike the railroads in Lee's rear. He moved in two columns—one under Crook, the other under Ord and Averell. It was not long until he came to grief and was relieved.

Gen. Joseph E. Johnston had prepared Dalton, Ga., to resist any attack that could be made upon it. The protection of lines of communication was left to Lieutenant-General Polk, commanding in Alabama.

Maj. Gen. W. T. Sherman moved against Dalton May 5 as Grant grappled with Lee in the Wilderness.[a] His armies of the Cumberland, the Tennessee, and the Ohio were commanded by Thomas, McPherson, and Schofield, all educated and experienced generals. The Army of the Cumberland embraced the Fourth Corps, Howard; Fourteenth Corps, Palmer; Twentieth Corps, Hooker. Of the Tennessee, Fifteenth Corps, Logan; Sixteenth Corps, Dodge; Seventeenth Corps, Blair. Of the Ohio, Twenty-third Corps, Cox; Cavalry Corps, Stoneman. General Sherman's army

[a] Memoirs of General Sherman, vol. 2, p. 31.

numbered about 100,000 men and 250 guns, and it was his constant effort to maintain it at this point.

May 5, Gen. Joseph E. Johnston had the two corps of Hardee and Hood, numbering 53,000 men and 144 guns. On that day Lieutenant-General Polk was ordered to join with all his infantry. As Johnston fell back reenforcements constantly arrived, until on the 16th he had about 67,000 men and 168 guns. As the army retired toward Atlanta these numbers increased.

It was not General Sherman's policy to attack the enemy at Dalton. His plan was to feint in front and, availing himself of his numerical superiority, move with a strong force to the enemy's left flank and rear, threatening his communications. Gen. Joseph E. Johnston's plan was to cling so close to him as to induce Sherman to attack him behind his works—so close that Sherman could not detach to help Grant in Virginia; to keep reducing Sherman's army by partial engagements in which Sherman, being the attacker, was the greater loser; to try to break up Sherman's lines of supply and fall back only when necessary to protect his own line to Atlanta.

Such was the character of the military struggle on the central strategic line. The opposing commanders were well matched; each was entirely capable of commanding his own army; each had tried and competent subordinates, and, having such subordinates, the only solicitude of each was how most effectually to carry out his part in the higher sphere of commanding general. General Sherman had no discretion; he was compelled to press ever forward; somehow the Confederate army opposing him must be destroyed, and he essayed to utilize his numerical superiority to press it back by threatening flank movements until he could force it from its impregnable mountain fastnesses into the more open country and there force it to battle on terms more favorable to the Federal Army. General Johnston had perhaps more discretion; as Sherman sought to destroy, so it was to his interest to preserve his army, which he did by appropriately responding to the turning movements of his antagonist; but this course, at variance with the Southern character, was

fraught with danger of demoralization;[a] on the other hand, if he stood to fight, with the enemy in his rear, a great victory over a superior foe would alone save him from destruction. He chose the former course; and, although greatly to the delight of the Federals, he was relieved from command in consequence, the best military judgment has justified his conduct.

On May 9 Thomas threatened Dalton from the northwest through Buzzard Roost Gap; Schofield approached from the north, while McPherson, detached to the right, penetrated to Resaca through Snake Creek Gap.[b] At this time Johnston had only one brigade guarding Resaca, a railroad station on his line of communication 15 miles in his rear. McPherson was imposed upon by the stand made by the Confederates and the seemingly formidable nature of the enemy's earthworks. Instead of seizing Resaca he reported that it was too strong for him to attack and, falling back to Snake Creek Gap, fortified.

Leaving Howard with the Fourth Corps to threaten Dalton from the front, the rest of the Army was moved through Snake Creek Gap on Resaca—Schofield on the left, then Thomas, McPherson on the right. They were opposed, respectively, by Hood, Hardee, and Polk, now prepared to receive them behind carefully prepared earthworks. Here during May 14 and 15 heavy fighting took place, the Confederates, protected by their intrenchments, losing less than the Federals; but, Sherman again threatening his line of communications, Johnston fell back over the Oostenaula to an intrenched position at Cassville, 4 miles east of Kingston. Here he proposed to make a stand, but the placing of some Federal artillery so as to enfilade portions of the lines caused some of his corps commanders to doubt the tenableness of their positions. Johnston therefore, not wishing to deliver battle contrary to their judgment, or, as he expressed it, unless their "hearts were in it," fell back over the Etowa on the night of May 19.

[a] Battles and Leaders of the Civil War, vol. 4, p. 432.

[b] Memoirs of General Sherman, vol. 2, p. 34; Battles and Leaders of the Civil War, vol. 4, p. 247 et seq.

Leaving the Cassville lines without defending them was an act for which General Johnston was severely criticised by Confederate authorities and one which he always regretted.

Supposing that Johnston would stubbornly defend the difficult Allatoona passes, 4 miles south of the Etowa, Sherman, leaving garrisons at Rome and Kingston, marched with twenty days' rations on the 23d toward Dallas, seeking again to turn the enemy's right. Johnston now interposed across the line of advance, his left, under Hood in front of Dallas, Polk, and Hardee, extending off to the eastward north of Marietta across the Atlanta Railroad. Sherman felt toward his own left, seized and repaired the railroad through Allatoona and Ackworth, thus enabling supplies to be immediately delivered to his army. Allatoona was organized and intrenched as a depot. Johnston continued to contract his lines, letting go in succession Dallas, Pine Mountain, Lost Mountain, finally holding on from Little Kenesaw on the right to Nose's Creek on the left. The passing days were signalized by considerable fighting, Lieutenant-General Polk being killed on June 11. He was temporarily succeeded by Maj. Gen. W. W. Loring. On June 27 Sherman, departing from his usual rule, assaulted the enemy at two points simultaneously, one near Little Kenesaw, the other farther south. Both attacks were repulsed with heavy losses to the Federals.

Not intending further to play into Johnston's hand, turning again was resorted to. July 1, Garrard's cavalry relieving him in front of Kenesaw, McPherson was put in motion toward Turner's Ferry, across the Chattahoochee, 6 miles from Atlanta. Johnston immediately met this movement. Making only a show of resistance at Smyrna Camp Ground, 5 miles in rear of Marietta, he surrendered all his strong works except the tête-du-pont west of the Chattahoochee, and on the night of July 5 took up a position on Peach Tree Creek immediately in front of Atlanta. Sherman, feinting by the right, crossed the Chattahoochee by his left. This movement was completed by July 9, when Johnston, releasing the tête-du-pont, drew his entire army into the defenses before Atlanta.

The unlimited supply of slave labor at his disposal, directed

by able officers temporarily without appropriate commands, enabled General Johnston to make phenominally strong earthworks during the whole campaign, and they now had reached a stage of construction that was nearly if not quite perfect. They were worth many thousand soldiers to an army standing on the defense.

It was at this stage that, July 17, General Johnston was relieved by Gen. John B. Hood.[a] It must be presumed that this was satisfactory to the Confederate authorities who ordered it, but the unusual circumstance was that it was hailed with delight by the Federal armies and Administration, who thus saw one of their most resourceful opponents cease to be further cause for anxiety.[b]

It unmistakably indicated a change of Confederate army policy. Coming outside to fight instead of awaiting assault behind works was now to be the order of the day. By the 19th the Federal corps were closing in on the Atlanta defenses, Thomas on the Federal right, then Schofield; McPherson on the left. They were opposed, respectively, by A. P. Stewart, who had succeeded Polk; Hardee in the center, and Cheatham's (formerly Hood's) Corps on the Confederate right. On the 20th of July Stewart attacked suddenly Sherman's right center, with spirit and tenacity, but was repulsed. On the 22d Hood, having drawn Hardee's Corps from left to right, attacked Sherman's left flank in an impetuous manner, gaining at first some advantages, but making no permanent impression. In truth, fighting in the open was a losing game. The Federal troops were equally as good as his and more numerous. It was on the 22d that the lamented McPherson fell, the command of his army, by the President's order, devolving on Howard. About the same time Slocum succeeded Hooker, Gen. Jeff C. Davis relieved Palmer, and Stanley took Howard's (Fourth) Corps.

Direct attack on the defensive works at Atlanta was not advisable; it might succeed, but chances seemed decidedly against it. Kenesaw was not forgotten. The next course was to break up Hood's line of supply. These were two railroads,

[a] Memoirs of General Sherman, vol. 2, p. 72. Johnston's Narrative, p. 348. Battles and Leaders of the Civil War, vol. 4, p. 253.

[b] Personal Memoirs, U. S. Grant, vol. 2, p. 167.

one east past Decatur, the other south past East Point. The first was soon destroyed. The future fighting around Atlanta now consisted of struggles to determine who should control the railroad south.[a] Sherman commenced, July 26, a flanking movement, for the purpose taking the Army of the Tennessee from the direction of Decatur to a position west of Atlanta. The other corps followed, Hood making a vigorous attack on the Fifteenth Corps, July 28, but the flanking continued steadily, every step fought with great stubbornness. Sherman concluded at last to raise the siege of Atlanta and take the Army bodily on this turning movement against the enemy's remaining line of supply. The Twentieth Corps, Slocum, was sent back to the Chattahoochee to guard the Federal line of supplies. The other corps struck out for the Macon Railroad, and from this time, August 25, every effort was made to destroy it. The fighting was continuous. On the 31st it attained the dimensions of a severe battle at Jonesboro, where Hardee, with his own and Stephen D. Lee's Corps, assailed Howard, but was repulsed. This interposed Sherman's army between those two Confederate corps and Stewart's in Atlanta. Hood immediately abandoned the city, which was occupied by the Federal troops on the 2d of September—four months from the commencement of the campaign.[b]

This event marked the success of the Federal army; the enemy's army was not indeed destroyed, but this great strategic point, hitherto deemed by the Confederacy unassailable, reduced at last into Federal possession, brought home to the minds and consciences of all, both North and South, that the government reared by rebellion was tottering to its fall.

The most remarkable feature of this campaign was that Sherman had been able to maintain a line of supply of 300 miles through a hostile country back to Nashville. The Confederates had it in their power, if not to destroy this line, at least very seriously to interfere with it. They had at their command a cavalry leader, Maj. Gen. N. B. Forrest, C. S. Army, who in that particular style of warfare has never had a superior. Fortunately, however, for Sherman he was kept

[a] Memoirs of General Sherman, vol. 2, p. 87. [b] Ibid., p. 108.

employed in other and, for the Confederates, relatively insignificant duties. At last, when too late, the enemy appreciated their error. They then turned attention to the destruction of Sherman's line of communication, hoping thereby to compel him to retrace his steps. At the same time it was arranged that Hood would, starting from Georgia, repeat Bragg's attempted invasion of the North.[a]

If this programme could be carried out, then indeed would the National Government and the loyal millions supporting it have little cause to rejoice over the fall of Atlanta. The Confederate officers and the armies they commanded were not to be deterred by difficulties short of impossibilities. They set about their work with an energy and fearlessness which showed that nothing short of overwhelming defeat would stay their progress.

This bold policy placed Sherman in a dilemma. If successful, then indeed would his brilliant successes prove Dead Sea fruit. Hood collected his corps, commanded by Cheatham, S. D. Lee, Stewart, and Wheeler, with the cavalry at Palmetto covering the West Point Railroad. About October 1 his army crossed the Chattahooche and marching north struck the Federal line of supply.[b] Sherman followed, hoping to bring Hood to battle. This he could not do. Hood's army was the more mobile of the two, knew the country better, and it was his new policy to make conquest in the North, not fighting Sherman in the mountains of Georgia.

The Federal commander now came to a determination which stamped him as a great general. He resolved to furnish Thomas, whom he had sent back to Tennessee, forces sufficient, with others poured into that country from all available sources, to meet Hood single-handed, while he, taking the rest of his army, would march to Savannah, establish a new base, and, moving thence north, cooperate with Grant against Lee's army in Virginia. This was a grand conception. In view of the easy success which attended its execution its real merit is liable to be underestimated. To fully appreciate this one must place himself in Sherman's position at that time

[a] The Civil War in America, vol. 3, p. 300.
[b] Ib. p. 313. Memoirs of General Sherman, vol. 2, p. 136.

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with all the doubts that beset him. His own part was easy; he took care of that by keeping nearly his whole army, but where Sherman showed his great military judgment was in his just estimate of General Thomas, whom he believed would, out of the troops Sherman sent him, joined to those picked up from all sources, far and near, improvise an army with which he could beat back Hood's invasion. Such was the proposition that confronted General Sherman in the mountains of Georgia, where unassisted he had to determine what course to pursue; he decided unaided, and with his great coadjutor, Thomas, is entitled to all the credit for the results that flowed from the brilliant and sound military conception.

To Thomas was sent the Fourth Corps (Stanley's), the Twenty-third Corps (Cox's), with other troops; and on November 12 he reported to Sherman from Nashville that he had force sufficient for the task assigned him.[a] Really the main, and in fact only, dangerous feature in this plan of campaign was that assigned to General Thomas. The actual march to Savannah was easy. The idea of living off the country had by this time penetrated the military mind.

Sherman's immediate army was divided into two wings under Howard and Slocum. It will be remembered that these three officers had served as colonels at the first Bull Run. Howard's (right) wing was composed of the Fifteenth Corps (Osterhaus's), and Seventeenth Corps (Blair's); Slocum's (left) wing of the Fourteenth Corps (Jeff. C. Davis's) and the Twentieth Corps (A. S. Williams's). The cavalry was separately organized under Kilpatrick. The strength of the army was about 60,000 aggregate. It was stripped of all possible impedimenta. The march was commenced from Atlanta on the 15th of November.[b] No resistance worthy of note was met. On December 10 the army was before the land defenses of Savannah. A great load was now lifted from the minds of the loyal North, relieved of anxiety as to the fate of the troops thus buried for weeks in the Confederacy, and regarding which nothing had been heard except through grotesquely erroneous statements of the enemy. On the

[a] Memoirs of General Sherman, vol. 2, p. 164. [b] Ibid. p. 147.

night of December 20 Hardee abandoned the city and the next day the Federal army marched into Savannah.

Thus one part of Sherman's final plan of campaign had been crowned with complete success; simultaneously the Federals had triumphed in Tennessee.

Thomas had placed the Fourth and Twenty-third Corps and the cavalry all under Schofield at Pulaski, Tenn., confronting Hood at Florence, Ala. Meantime he was organizing the military odds and ends that were sent to him at Nashville, and was fortifying there. Even the quartermaster's and other staff employees were temporarily converted into semblance of soldiers. Hood had not succeeded in drawing Sherman after him—his main object. If he could not destroy Thomas's army thus improvised he could not invade Kentucky, and therefore his campaign would be a total failure. He resolved, therefore, to march against Thomas and destroy him. He did not believe that Thomas could spirit up from the heterogeneous elements furnished him an army which could meet his own in battle.

On November 20 Hood's army commenced to move forward from the vicinity of Florence, Ala.[a] By the 30th Schofield was maneuvered back to Franklin on the south side of Harpeth River, 18 miles in advance of Nashville. Here Hood attacked with great vehemence, persisting till long after dark. It was in vain. The Federal veterans, equaling their antagonists in valor and experience, die they would, but they would not give back or flee.[b] The knightly Stanley fell badly wounded; while on the side of the Confederates, 12 generals killed, wounded, or captured evidenced the desperate character of the persistent and oft-repeated assaults. Among the Confederate killed was Brig. Gen. John Adams, a graduate, who fell while in the act of grasping the National colors where they were planted on the crest of the Federal works from which his troops were repulsed.

Franklin was Hood's opportunity. If successful there he might beat Thomas's army in detail. But he failed to drive Schofield into the river, suffering in the attempt a loss that

[a] Battles and Leaders in the Civil War, pp. 428-429.
[b] The Civil War in America, vol. 3, p. 380.

visibly dampened the hitherto almost invincible courage of his army. That night Schofield fell back under Thomas's orders, and on December 1 Thomas's troops presented a united front to the enemy at Nashville. Here, on the 3d, Hood appeared, attempting to establish a partial siege—Cheatham on the right, Lee in center, Stewart on the left.

In this attitude stood the contestants who had faced each other on many fields, each side exerting itself to the utmost for the impending struggle. This the adverse elements for a few days delayed, but on December 15 Thomas, feinting by his left, moved out A. J. Smith, Schofield and Wilson on the right, rolling up the Confederate left. The Fourth Corps, under T. J. Wood, now advanced in the center, with Steedman on the Federal left, and the entire Confederate line was forced back. On the 16th the work thus begun was completed, the enemy utterly routed; and that night the proud Confederate Army of Tennessee, which never before had turned back to the foe, was in wild retreat, its dream of conquest forever vanished.[a]

Hood was thus baffled at every turn. Sherman was safe at Savannah, while his own brave army, pursued by that which Thomas had raised as an apparition before his eyes, was seeking in flight the protection of friendly rivers and mountain passes far in the interior of the Confederacy. As on the Mississippi, the armies of the West, aided by their brave associates, the flotilla manned by the Navy, thus triumphed likewise on the central strategic line.

The grand character that looms out of these momentous events is Maj. Gen. George H. Thomas. He had promised General Sherman that he would take care of Hood, and he did so. The Confederate Army was more completely broken to pieces at Nashville than any other in a pitched battle during the civil war. On the central strategic line all eyes had for months been following the armies of Sherman and his opponent, and when the former turned his back upon his lieutenant and marched to Savannah the Confederate authorities were confident that their path of invasion across the Ohio River could not now successfully be disputed. Had this

[a] Battles and Leaders of the Civil War, vol. 4, p. 457. The Civil War in America, Draper, vol. 3, p. 353.

proved true the Atlanta campaign would have been fought in vain. That an army distinct from the one directly under Sherman could be organized in Tennessee sufficiently virile and powerful to impede Hood's march and destroy his army was as great a surprise to the Confederate administration as the appearance of the Spanish army on the fateful field of Baylen was to Napoleon.

Two incidents connected with this campaign deserve notice here. The first occurred in front of Atlanta, as a sequel to McPherson's death. The question arose as to his successor in command of the Army of the Tennessee. Sherman selected Howard, a junior, because he was a professional and educated soldier, without the political interests of some senior corps commanders, competitors for the command.[a] The assignment was confirmed by President Lincoln. The other incident was in connection with Thomas's Nashville command. General Grant, in Virginia, was very anxious that Thomas should attack Hood. At length he gave peremptory orders to that effect. General Thomas, as was his wont, waited until he was prepared, and until conditions were, in his opinion, favorable. Grant first asked that Schofield should relieve him, and, this not being done, he next sent Gen. John A. Logan, but almost immediately started himself for Nashville, learning of Thomas's glorious victory at Washington while en route.[b] General Logan was not sent to take command of General Thomas's army, but only the Army of the Cumberland.

Graduates acted a great part in this campaign. They embraced all army commanders on both sides. At the commencement, from Dalton to Atlanta, of the Eighth Federal Corps, including the cavalry, three were commanded by graduates—Howard, Hooker, and Stoneman. With General Thomas all the corps commanders except one were graduates, as likewise was true in Hood's army. However, under these splendid Army commanders, who had learned the fundamental principles of the military profession at the Academy and practiced them in the field, there had grown up in both

[a] Memoirs of General Sherman, vol. 2, p. 86.
[b] Personal Memoirs of U. S. Grant, v. 2 pp. 382, 383.

armies, during this long and trying war, a class of officers competent for every duty placed upon them, from subaltern to corps commander.

The Army of the Potomac, in three corps, Second (Hancock), Fifth (Warren), and Sixth (Sedgwick) moved from Culpeper across the Rapidan on the 4th of May.[a] Burnside commanded the Ninth Corps, Sheridan the cavalry. The whole force numbered about 118,000 men. The General-in-Chief was with the Army of the Potomac.

The Army of Northern Virginia, under Gen. Robert E. Lee, consisted of the corps of A. P. Hill, Ewell, and Longstreet. Stuart commanded the cavalry. The total effective force was about 61,000.

General Grant's plan of compaign was not unlike that of Sherman. He proposed to move direct against the enemy, and should the latter prove too strong behind his intrenchments then to utilize his numerical superiority to work to a flank, always feeling toward Richmond as Sherman did toward Atlanta.

Lee, as though inspired by recollections of Chancellorsville, moved on the 5th of May to strike Grant's columns in flank while in the entanglements of the Wilderness. Here the battle fiercely raged during the 5th and 6th, resulting in great losses, the burning forests, where many wounded lay, augmenting the horrors. Among those who fell were Brigadier Generals Wadsworth and Robinson on the Union and Lieutenant-General Longstreet on the Confederate side; the first killed, the two latter seriously wounded. Longstreet was succeeded by Maj. Gen. Richard H. Anderson.

Reconnoissance on the morning of the 7th showed that Lee's army was heavily intrenched. Grant therefore resolved to move immediately by his own left flank, with a view to interposing between Lee and Richmond. That night the march for Spottsylvania Court-House, 7 miles south, was commenced. Lee had failed in his attempt, by flank attack, to arrest the progress of the Union Army.

Lee discovered the movement on Spottsylvania, and, due

[a] Personal Memoirs of U. S. Grant, vol. 2, p. 177.

perhaps to better knowledge of the country, Richard H. Anderson reached there before the head of Grant's column under Warren. Here on the 9th, 10th, 11th, and 12th bloody battles, similar to those of the 5th and 6th in the Wilderness, were repeated; but as was to be expected, Lee, having the interior lines of operation, was always found securely intrenched to receive attack. He was handling his army with great ability.

But it was not the policy of the National commander to fight an enemy behind fieldworks, amidst almost impenetrable thickets. Consequently on the night—21-22—rain and expected reinforcements causing the delay, a flank movement by the left commenced to the crossing of the North Anna by the railroad, distant in an air line about 20 miles.

Here again Lee was found intrenched on the south side of the river, and so skillfully that Grant could not reunite his forces after crossing. The experiences of the Wilderness and Spottsylvania were repeated, the Confederate lines being practically unassailable. Sheridan meantime rejoined the army from a raid upon the enemy's depots and lines of supply. Maj. Gen. J. E. B. Stuart, the Confederate cavalry commander, was mortally wounded at Yellow Tavern during this raid.

Another flank movement by the left having been determined upon, the Second, Fifth, and Sixth corps were silently recalled to the north bank of the river on the night of May 26, and started for the crossing of the Pamunkey at Hanover Town, about 20 miles in direct line below. The cavalry under Sheridan was skillfully used in masking this march, which, by June 1, placed Grant's army confronting Lee's at Cold Harbor. This was the last point at which the enemy could be attacked outside of the semi-permanent works of Richmond. Accordingly, on June 3, a very heavy assault was made here upon the enemy's position, but it was repulsed with loss. All attempts to interpose, so as to cut off the Army of Northern Virginia from Richmond had failed. But the battle of the giants was on, and was to be fought out on that line. Whatever might be done elsewhere, here the issue of union or disunion was to be settled.

A new phase of the campaign now was presented. The

Confederate army thus far had proved unassailable behind its field works. It was reasonable to suppose that it would prove equally so behind the heavier defenses of its capital, before which it had arrived and under cover of which it was about to take up its position. The situation in its vital aspects was not unlike that before narrated of Sherman confronting Hood at Atlanta. It had become absolutely necessary to cut the enemy's line of supply, destroy his depots, starve him, and so work and maneuver that he would be compelled to give battle without the protection of fortifications. This might occur either by the Confederates leaving those fortifications or the National army finding some vulnerable point in the fortified line through which it might be able to penetrate, thus giving the enemy no alternative except battle, uncovered, upon the restricted but open ground in rear.

From this time the campaign was conducted on these principles. Sheridan, Kautz, Wilson, Hunter—in fact, every general who could be spared—was sent out to destroy the enemy's lines of communication. Their efforts were supplemented and made really effective by movements of large bodies. Necessarily such a plan of campaign required a large army, much exceeding in numbers that of the enemy, but the superior authority of the General in Chief enabled Grant to bring to the vital point every available soldier whose services elsewhere were not indispensable, and as to this he was the judge. It was this authority alone which made ultimate success possible.

The protection of either Washington or Richmond as an indispensable matter was now scarcely thought of. It is true that the capture of either would prove inconvenient and was so undesirable that a reasonable effort should be made to avoid it. But such considerations now had assumed at this stage of the war an altogether secondary importance. The struggle had come down at last, after four years of fighting, to the ultimate and intrinsic principle of wars which can not be compromised—the destruction of the opposing armies. Upon this spectacle alone the attention of the interested governments and peoples now was riveted. Each appreciated

that this would prove determinative; each, scarcely breathing, watched those armies' every move.

In carrying this new plan of campaign into execution Grant resolved to cross the James River, making this his new base of supply, and, uniting the armies of the James and of the Potomac, have them better in hand. This was accomplished by the 16th of June, 1864. It involved, as did McClellan's flank march of two years before, a delicate movement in face of the enemy, but Lee was now in no condition to attempt to profit by it. Instead he drew his army into the fortifications of Richmond, which included, virtually, those of Petersburg, 20 miles distant. Here, as in the Atlanta campaign, a practically unlimited control of slave labor enabled the Confederates to raise earthworks as if by magic. Their engineers were of unsurpassed ability. Grant established his new base of supplies at City Point, and the siege of Richmond commenced by the siege of Petersburg, an assault on the defenses of the latter by a portion of the Army of the James, June 15–16, having been repelled.

The first substantial advantage was gained on the 18th of August, when Warren seized and held the Weldon Railroad, thus leaving Petersburg but one railroad fully communicating with the South.[a] Heavy fighting and much cavalry raiding there was during the course of the summer and fall. On August 29 Fort Harrison and its connected works north of the James was captured and held permanently by the Federal troops. The next day Meade captured the works at Poplar Spring Church, in his front. Grant's tactics were to feint toward one flank and, the enemy having met that, fall upon the part thus weakened. He operated both north and south of the James River in this way, but the Confederates were vigilant and made their antagonists pay dearly for every misstep or error of judgment. In the presence of such a numerically superior and so determined an enemy the only hope of the Confederate army lay in its unexampled means of fortifying. Its resources in this seemed practically to have no limit. On October 27 Grant moved the Army of the

[a] The Civil War in America, Draper, vol. 3, p. 415.

P. H. Sheridan

U. S. M. A. 1853.

Potomac out toward the Southside Railroad with a view to seizing it. The country was examined 7 miles or so toward that railroad, but the enemy's intrenchments guarding Petersburg were everywhere found occupied. Not desiring so to extend his own lines at this juncture, the enemy occupying the chord while he held the arc of a circle, he marched back to the old stations in the fortified lines. These were improved, a railroad in rear of and along them built, and for the rest of this campaign the task of the army immediately under General Grant was reduced to siege operations. So the winter wore on, each side vigilant, aggressive; each preparing for the struggle, whatever phase it might take, which would be ushered in by the spring.

While this had been going on Sheridan acted a great part in the Shenandoah Valley. Sigel had failed in his raid. Hunter, who relieved him, had at first considerable success. This led him toward Lynchburg, a point of so much importance on Lee's line of communications that he sent a strong force to its relief. Hunter was obliged to retreat during the latter part of June into West Virginia, his army enduring great hardships. This left Washington City badly guarded. Lee resolved to take advantage of the circumstance to call off some of Grant's troops and thus relieve the pressure on himself. Hunter not being able to transport his troops in time, the Sixth Corps under Wright and the advance of the Nineteenth Corps from New Orleans were sent to meet Early's threatened attack on Washington. The Confederate general had approached from the north within 6 miles of the city on July 10, and the next morning advanced to feel the defenses at Fort Stevens. This consumed the day—a circumstance which illustrated the immense value to it of the capital's extensive system of fortifications. That night an assault of the works on the 12th was resolved upon, but the arrival of the corps just mentioned caused the plan to be abandoned. Instead, Early was now only concerned for the safety of his command, retreating with all possible speed into the Shenandoah Valley, whence he had come, and which now was to be the theater of a campaign in brilliancy eclipsing and in

substantial results obtained far exceeding in importance that of Stonewall Jackson.

It was at this time that Sheridan arrived upon the scene, relieving Hunter on the 7th of August.[a] The Army of the Shenandoah consisted of the Sixth Corps, two divisions each of the Eighth and Nineteenth corps, two divisions of cavalry under Merritt and Wilson from Petersburg, one division of cavalry already in the valley, the whole of cavalry under Torbert.

September 19 Sheridan and Early confronted each other at Winchester. The former moved to attack the latter in position. His plan was to threaten the Confederate right, turn the left, and assail the center. Early's left being turned, the attack in front was pressed with vigor, and the Confederates were thrown into confusion, greatly augmented by the charge of the National cavalry under Merritt and Torbert. Early, driven from the field, rallied at Fishers Hill, 12 miles south, where on the evening of the 21st he was again attacked, Sheridan using the same tactics and with the same result. Sheridan pursued through Harrisonburg, Staunton, and the gaps of the Blue Ridge. In a week's time he had captured or destroyed half of Early's army, driving the rest out of the Shenandoah Valley, which he now proceeded to devastate, hoping that thereafter the enemy's army might not find sustenance there. A month was thus spent.

But Early was not easily to be disposed of. He was a veteran at the head of veteran troops who, though beaten in battle, had great recuperative powers. The Confederate Army had always been splendidly officered, especially in the higher grades, and now that fortune seemed to be going against them their courage, tenacity, and fortitude rose with adversity. Sheridan, having posted his army behind Cedar Creek, near Strasburg, went to Washington for consultation. Here, on the morning of October 19, Early attacked and defeated the Federals,[b] but the Confederates, failing to follow up the success, and stopping to plunder the captured camp instead, the Union troops, under Wright, again formed in line. At

[a] Personal Memoirs of U. S. Grant, vol. 2, pp. 530–531; the Civil War in America, vol. 3, p. 408.
[b] The Civil War in America, Draper, vol. 3, p. 412; Battles and Leaders of the Civil War, vol. 4, p. 516.

this hour, 11 a. m., Sheridan arrived. Approving what Wright had done, he instantly took measures to attack the enemy. This was done about 3 p. m. with so much determination that Early was completely overthrown, and his army, taken by surprise, practically destroyed, forever terminating the Confederate attempt to hold the Shenandoah Valley.

This practically ended the campaign on the eastern or Virginia strategic line for the year 1864. Lee's Army, cooped up in the defensive lines adjacent to Richmond, had been rendered incapable of serious operations beyond them. On the other hand, Grant, in front of these works, ever was looking for opportunity for successful aggressive movement, while light columns and the cavalry were available and ready for operations against the enemy's lines of supply or wherever they could do him most harm. The contest was too unequal. At the close of 1864 it was apparent to reasonable men that the Confederate armed hosts could not much longer resist the assaults made upon them. The only question was how long the final catastrophe would be postponed.

Besides the general in chief, the graduates in high command during this campaign included Meade, Sheridan, all the corps and 12 of the 20 division commanders. The same was essentially true in General Lee's Army. These were propitious times for the development of soldiers. Under Grant and Sheridan they had opportunity to show what was in them, and received recognition in due proportion to the services rendered and ability shown. Such young graduates as Emory Upton, S. S. Carroll, Torbert, Gregg, Merritt, and Wilson were coming to the front. The Union cavalry was taking its appropriate place in battle and campaign; had already done so in 1863.

Gen. B. F. Butler moved on the same day upon which Grant's corps crossed the Rapidan. But he could not direct the components of an army—in other words, maneuver or fight it—and, except to act as a containing force to a much less number of Confederates behind their works south of Richmond, his troops did nothing worthy of notice until

they came immediately under Grant's supervision and the Army of the James practically coalesced with that of the Potomac.

OPERATIONS, 1865.

On January 1, 1865, there was but one formidable Confederate army in the field, the Army of Northern Virginia.

The Army of the Tennessee was so crushingly defeated at Nashville that it almost disappeared. Its organization was maintained, but it was a skeleton only of its former self. It yet was to be reckoned with, but only as formidable in case it could have joined to it all the Confederate detachments in the South Atlantic district.

February 5 Gen. Robert E. Lee was appointed general in chief of all the Confederate armies. This conferred the same authority within the Confederacy that his immediate opponent, Grant, possessed in the armies of the Union. On February 23 Gen. Joseph E. Johnston was directed to report to General Lee, and was placed in command of the Army of the Tennessee and of the Department of South Carolina, Georgia, and Florida. His orders were to unite all the troops and drive back Gen. William T. Sherman, who was marching northward from Savannah to join Grant in Virginia.[a]

The plan of the Confederates was for Johnston to fall back only if this became necessary. Then Lee, escaping from Grant's grasp, would join him.[b] If this could be done, Sherman first, then Grant, was to be crushed. It was a daring scheme. But it was recognized that if anything could save the Confederacy, which appeared impossible except to the most sanguine friends, it needs must be a desperate measure, attended in the execution by great good fortune. General Johnston indulged in no such hopes. When he was restored to command his belief was that it only remained for the Confederates to do battle longer to secure best possible terms of peace. In the mixed army which he now had were many notable officers come to rally the remnants of former commands. It was the expiring effort of the old guard. There were Bragg, Stewart, Hardee, S. D. Lee, Wheeler, of the Army

[a] Johnston's Narrative, p. 371. [b] The Civil War in America, vol. 3, p. 564.

of the Tennessee; Beauregard, who launched the first shot at Sumter amidst plaudits of brave men and approving smiles of women; the sturdy D. H. Hill, of South Mountain fame; graduates were all these; while beside, elbow to elbow, stood Cheatham, Hampton, Hoke, Butler, Pettus, Law, apt pupils who had well learned from them lessons in leadership. But what gaps there were in the ranks. Where were former commanders and companions whose valor challenged the admiration not only of the National Army, but of the military world? As in the armies of the Empire, when their names were called came the response, "Died on the field of honor."

General Grant had anticipated so early as the commencement of the campaign of 1864 that the Confederate armies of Lee and Johnston might possibly attempt to maneuver as here proposed, and, by uniting, try to beat in detail his army, then Sherman's. He warned the latter accordingly.[a] His solicitation at the beginning of 1865 was to prevent at all hazards Lee leaving his works until Sherman approached from the south. When this happened Lee's army would be proceeded against.

The destruction of the Army of Northern Virginia was the one great object to be accomplished. The movements of the two large armies under Grant and Sherman went directly to this end. There were other and minor movements intended to aid the main ones either by crippling the enemy or distracting his attention.

The first of these secondary efforts was directed against Fort Fisher, at the mouth of Cape Fear River, in December, 1864. The land forces were under command of Maj. Gen. B. F. Butler, whose department embraced North Carolina. It was a failure. He was relieved, at Grant's request, of command of his department and of the Army of the James by Maj. Gen. E. O. C. Ord, U. S. Volunteers. The expedition returned in January, 1865, under command of Maj. Gen. A. H. Terry, one of Butler's subordinates, who had worked his way up from grade of colonel in active service. This time it was eminently successful. This closed the important blockade-running port of Wilmington, N. C., besides leading to the

[a] Memoirs of General Sherman, vol. 2, p. 29; The Civil War in America, Draper, vol. 3, p. 535.

establishment of a secure Federal base of supplies on the flank of Sherman's expected line of march.[a]

To establish this base, which was deemed most important, General Schofield, who had brought the Twenty-third Corps east and who had been put in command of the Department of North Carolina, captured Wilmington, N. C., February 22, and then pushed columns into the interior, seizing Goldsboro on the 21st of March.[b] The object of establishing these bases of supply on Sherman's flank was fully realized during his march.

Another combined Army and Navy expedition was directed against Mobile. The land forces were commanded by General Canby. They embraced troops aggregating about 45,000, under Gordon Granger, A. J. Smith, Frederick Steele, and Eugene A. Carr. The forts guarding the city fell in succession. The enemy then evacuated the city, which was taken possession of by the Federals on the 12th of April.

Cavalry raids were made by Stoneman from East Tennessee upon the Confederate lines of supply and depots in Virginia and North Carolina in rear of Lee's army, and by J. H. Wilson from Eastport, Miss., through the yet unexplored districts of Selma, Montgomery, Columbus, Ga., and Macon. Great damage was done in all these raids and expeditions, but, due to the fact that every effort was being made to reenforced the armies of Lee and Johnston, resistance was less than expected. Except in these two armies, there was little resisting power left in the Confederacy. It was fought out. Of the same general character as these was Sheridan's raid from Winchester up the Shenandoah Valley in February and March. At Waynesboro he again encountered and routed his old antagonist, Early, joining the Army of the Potomac on the 27th, after destroying as much as possible Lee's lines of communication.

Sherman's northern march through the Carolinas began on February 1 by Howard moving out the right wing from Pocotaligo.[c] Slocum with the left wing moved from near

[a] The Civil War in America, Draper, vol. 3, p. 521 et seq.; Personal Memoirs of U. S. Grant, vol. 2, p. 607.

[b] The Civil War in America, vol. 3, p. 530.

[c] Ib., p. 542.

Robertsville. The army was about 60,000 strong. The country to be traversed was difficult; but the enemy to be encountered was not formidable until their various detachments could be concentrated. Columbia was reached on the 17th of February. Charleston, S. C., was abandoned by the enemy on the 18th, Hardee escaping with 14,000 troops by railroad to Florence. The Union army moved with caution. The first serious encounter was at Averasboro, March 16, between Hardee and Slocum. The next, near Bentonville, on the 18th, was more serious still, where Johnston commanded in person. There was here heavy and persistent fighting, the Confederates being the aggressors. But Johnston, fearful of being cut off by the forces concentrating in his front, fell back to Smithfield. A peculiar interest attaches to the battle of Bentonville. Here were seen arrayed against each other for the last time the armies which in the West for four years had contended for the mastery. Long since they had learned to respect each other. Their last contest was worthy of veterans.

On the day that Johnston retreated from Bentonville Schofield occupied Goldsboro. The armies of Sherman and Schofield were united, and Johnston was confronted with 100,000 veteran troops.[a] April 10 Sherman moved against the enemy, who retreated rapidly.[b] But events elsewhere decreed that the armies of Johnston and Sherman had fought their last battle.

March 24 Grant issued instructions for a movement against Lee, to commence on the 29th.[c] The army was to move to the left, interpose between Lee and Johnston, the lines of supply of the former to be absolutely destroyed and he compelled either to surrender or come from behind his works. On the 27th Sherman visted Grant at City Point, immediately hurrying back to attack Johnston.

March 29 Sheridan moved out from the left with 9,000 cavalry under Crook and Merritt. On April 1, reenforced by the Fifth Corps, he encountered troops under Pickett at Five Forks, gaining a great victory, vigorously pursuing the Confederates and capturing many prisoners. Lee's right

[a] The Civil War in America, Draper, vol. 3, p. 588.
[b] Ib., p. 554.
[c] Civil War in America, Draper, vol. 3, p. 504; Personal Memoirs of U. S. Grant, vol. 2, p. 619.

flank was now turned, the Federals in his rear. The mortal blow now descended. April 2 the Union forces advanced upon the enemy's works, capturing everything before them. A. P. Hill, hastening to restore his lines like McPherson at Atlanta, fell in the same manner.

General Lee informed President Davis that Richmond must be abandoned and at once began measures for retreat. On the 3d the Union Army entered the deserted and burning Confederate capital. Its first mission there was one of mercy, extinguishing the conflagration kindled by its departing defenders and saving the city from destruction. The members of the Confederate Government now were fugitives.

The rest is told in few words. Lee's only chance lay in effecting a junction with Johnston. His army was immediately put in motion in that direction. Grant's army moved to head him off. Lee had somewhat the start, and, being better acquainted with the country, had prospect of first reaching Burksville, at the junction of the Southside and Danville railroads. But it was destined that his army should never reach there. At Amelia Court-House he found that the train with supplies for his almost famished troops had been diverted to the purpose of carrying the fleeing civil officers. Some delay for food was absolutely necessary. That sealed the fate of the Army of Northern Virginia and the Confederacy. Sheridan first interposed at Jetersville, across the line of retreat, with his cavalry, soon to be joined by the Army of the Potomac. The great Army of Northern Virginia, driven to bay, made one more effort. Sheridan, advancing on the 6th of April upon Amelia Court-House, found that Lee had escaped, passing around the Federal left, and moving on Farmville. He hoped by destroying the bridges there to gain a moment's respite. But the relentless Federal trooper pressed on. At Sailor's Creek Ewell and the remnant of Pickett's corps, cut off, were forced to surrender. April 6–7 the rest of the Army of Northern Virginia reached and crossed the bridges of the Appomattox at Farmville, pushing back the head of Ord's columns, which arrived from Burksville Junction. A running fight was maintained, the retreating army occasionally turning with telling effect upon its pursuers,

but upon the whole being gradually broken to pieces. The third and last of the main strategic lines had been won by the armies of the Union.

The hopelessness of the situation was apparent to all, and propositions looking to terminating it by the surrender of the Army of Northern Virginia gradually took form on both sides. On the 7th General Grant opened communication with General Lee with this object in view. On the 9th Lee, having been cut off from his supply trains at Appomattox Station, and finding the Federal Army barring further progress toward any place of either safety or repose, favorably responded to those overtures. As a commander he had done his full duty toward both the Confederacy and its army. Formal terms of surrender were signed that day. Peace was all they were intended to accomplish. The arms, except side arms of the officers, artillery, and public property, were given up. Private property of whatever nature, including horses of officers and men, was retained by the owners. The personnel were paroled under an obligation not again to serve in the Confederate armies or in other military capacity until properly exchanged.[a]

On April 14 Sherman received a communication from Johnston looking to surrender. The first memorandum agreed upon by the generals, April 18, was not approved by the Federal President, Mr. Johnson. Accordingly, another was drawn up on the 26th, almost in the language of Grant's terms to Lee. This being approved, Johnston's army duly surrendered, and the greatest civil war of history in numbers engaged, losses sustained, and resources expended was at an end.[b]

Impartial history will record that the Confederacy was surpassed by no previous efforts in the gallantry with which it maintained the cause it had espoused. The valor shown by its armies, led by graduates, excited the admiration of soldiers everywhere. That the Confederates, failing in open combat, did not resort to vicious guerilla tactics, only to bring misery to noncombatants, gave further proof of their discipline and courage.

[a] The Civil War in America, vol. x, p. 502. [b] Ib., pp. 608, 611.

The integrity of the Union had been vindicated by the sword.

In the final scenes, as was generally true throughout the war, graduates were at the head of all armies. The names of graduates alone were attached to the articles of surrender. From start to finish they had acted a controlling and determinative part in campaign and battle. They commanded on both sides in every important battle and in nearly every engagement approaching the dimensions of a battle. They had been the mainstays of their respective governments in military affairs. Politicians whom it had been attempted to convert into army commanders by the easy plan of placing on their shoulder the general's stars had without exception proved their unfitness. It was seen that though these characters might act their assigned part in small affairs against small men, they were wholly incompetent to the strenuous demands of the civil war.

It often is said that the Regular Army in time of war is a nucleus about which gather the much more numerous volunteer forces then called into the service of the United States. This statement is true. But the suggestion often coupled with it, that the volunteers, from the fact of being numerically the more numerous, become therefore the more important element, in presence of which the Regular Army in time of war is dwarfed and sinks into comparative insignificance is not true. Mere excess of numbers is not the only nor necessarily the best test of relative importance in military operations.

The Regular Army furnishes all the important commanders, the substructure of all the great administrative departments, and, at the commencement all there is of correct knowledge throughout the whole armed force regarding the art and science of war. Gradually as the war progresses this knowledge is disseminated throughout the mass of volunteers; but the officers who are the instructors, exemplars, and the distributors come from the Regular Army either directly or they have served there before and now come in from civil life; and, in their turn, the Military Academy is the source whence they all, without exception, acquired information concerning and appreciation of the fundamental principles upon which

armies should be commanded, affairs of supply administered and campaigns conducted. Nucleus, therefore, as the word is used above, is only an apt term when it is understood in the sense that while the Volunteers furnish the great excess in numbers the Regular Army furnishes the technical knowledge, intelligence, and will power to command, the experience to direct, the professional stamina which serves as the vertebra of the entire military establishment. The Volunteers, though vastly outnumbering the Regulars, are superior to the latter in numbers only; in all matters of leadership and and soldierly knowledge they are both individually and in the aggregate inferior. Verification of this is found in the fact that at the end of this great civil war, which startled the world by its proportions and incidents, the only officers on both sides who successfully had commanded armies, conducted campaigns and fought great battles belonged to their respective regular armies and were graduates of the Military Academy.

It was fitting that graduates should have acted this leading and dominating part. To prepare them for this the Academy was founded. The field of danger is the post of honor. Its effort ever has been to qualify those intrusted to its care for acting up to this high—the soldier's only—standard.

The General Staff, recently created by statute, with encomiums of sanguine friends and the good will of the nation, commences its career of hoped-for improvement under auspices which the Academy has been the principal agency in establishing. Neither the Army nor the nation will take good results for granted in this behalf. Usefulness must be demonstrated before either will believe, and the degree of faith will be proportioned to the demonstrated usefulness. Mere details of service, which other agencies have both time and facilities the better to attend to, must be eschewed, and the attention of this corps d'élite directed to the more elevated problems of national defense, and, as these are seen from its more advantageous point of view, coordinating the important operations of the existing instrumentalities of the military system. The end to be attained is the development of commanders who can beat the enemy in battle. All other

considerations and all other agencies, how important soever they may be in themselves, are merely ancillary and incidental.

The incidents of the civil war are commended to the study of any nation which seeks a quarrel with the United States. The lessons there to be learned will perhaps be conducive to caution. In that war armies organized, supplied, disciplined, and commanded by graduates proved by their fortitude in campaign and their valor on the battlefield, as evidenced by the percentage of killed and wounded, that the Republic has in its own midst defenders equal to its every need.

It is due to the Academy alone that the scientific principles upon which military operations should be conducted are understood in the United States. Previously the Army, though brave, was technically uneducated, a circumstance which led Washington, with his great military experience, to favor such an institution. Its influence permeates every part and individual of the Army. From it those who are not graduates have drawn, indirectly, their knowledge of the art and science of war. Through the process of absorption, mental and physical, due to contact, all members of the military establishment for the past three-quarters of a century and upwards have assimilated in their daily experience the instruction here imparted and carried thence to the Army. The source whence has flowed an exposition of the true principles upon which wars should be waged has been the same for all. Those splendid officers, whether entering from the Army or private life during the civil war, who under the guidance of graduates learned to take a stand side by side with their instructors, have illustrated in their careers as much as graduates themselves the necessity for and inestimable value of the institution whence is disseminated in the first instance correct professional knowledge.

These are truths and principles long since appreciated by the people of the United States. And so well established were they within a half century of the founding of the Military Academy that the national polity was conformed thereto. It necessarily was so in a virile, progressive nation. It simply illustrated the march of intelligence directed by the light of education—that subtle but irresistible force which ever with

firmer tread is carrying the Christian world forward to a higher plane of refinement and civilization.

Among agencies leading upward peoples and their governments none is more potent than armies under competent commanders. Wars inevitably arise in the course of human events. Such commanders so conduct them that, while they best subserve the purposes of the State, they are rendered as brief as possible, with the least of human suffering consistent with success. It is the glory of the Military Academy that from amidst her sons have come forth when occasion demanded commanders who could successfully lead the largest armies recruited from citizens of the republic. The world has had a demonstration on the most extensive scale that the policy of the United States has produced and is perpetuating within its own limits every element necessary for self-preservation.

LIST OF THE PRINCIPAL WORKS CONSULTED IN WRITING CHAPTER .

Official Army Registers.
Twenty Years in Congress. Blaine.
Campaigning with Grant. Porter.
Battle of Chancellorsville. Bates.
Battles and Leaders of Civil War.
History of the Civil War. Draper.
Civil War in America. Comte de Paris.
Genesis of the Civil War.
Cullum's Register of Officers and Graduates of the Military Academy.
Four Years with the Army of the Potomac. De Trobriand.
Personal Memoirs. General Grant.
Military History of Grant. Badeau.
Reminiscences of Gen. W. S. Hancock.
Gen. Joseph E. Johnston. Hughes.
From Manassas to Appomattox. Longstreet.
McClellan's Own Story.
History of Military Operations. Johnston.
Rebellion Records. Moore.
Regimental Losses in American Civil War. Fox.
Memoirs of Gen. W. T. Sherman.
Memoirs of Gen. P. H. Sheridan.
From Chattanooga to Petersburg. Smith.
Volunteer Soldier of America. Logan.
War of the Rebellion, Records of the Union and Confederate Armies.

Memorandum: All of the above-named books are in the Library U. S. M. A.

SPANISH GUN AT PUNTA GORDA, SANTIAGO DE CUBA. MORRO CASTLE IN THE DISTANCE.

SERVICES OF THE GRADUATES IN THE WEST INDIES DURING THE SPANISH-AMERICAN WAR AND THE SUBSEQUENT OCCUPATION.

By Captain LEWIS C. SCHERER,
Fourth Cavalry, U. S. Army—U. S. Military Academy, 1891.

CAVALRY PRIVATE, 1863.

FOR A PERIOD of thirty years following the civil war, the Military Academy went quietly on fulfilling the function of turning out educated soldiers. During this time it seemed as if the crucial test of war was never to be applied for determining in battle whether the process of training followed at the Academy was the best one.

With the exception of Indian wars and labor troubles, in which only a small part of the war machinery was employed, the usefulness of the graduates was manifested in, and their services were devoted to, the training of the Regular Army that was to form the nucleus of the fighting forces for future wars.

War alone, however, can measure the results accomplished by the Academy, which has for its purpose the development of men ready to take up the task of war and to fit them as leaders of men in war.

Throughout these long years of peace there was no other incentive to perfect performance of duty than the fact that at some remote time there might come a day when this long and tedious preliminary training would make its full worth felt.

When war comes, it comes quickly and with little warning. Even the period of warning is one of action, and there is no further time for training or making up deficiencies by belated diligence. The best that can be done is to use the material available to the best advantage, and it is at this time that knowledge, capability, and familiarity with duties are of

double and treble value. We know how welcome a man of even the slightest military training is to the company of raw recruits. In the same proportion is a knowledge of the entire military art and an acquaintance with military matters acquired by daily contact of the greatest value at this time.

In the majority of professions the graduate is given an opportunity to test his powers and acquire knowledge by contact with the world and in competition with others. Deficiencies in the methods employed in the training in these professions can therefore be corrected from time to time and brought up to the standard of requirements by reference to the results achieved. In the profession of the soldier, how different! For thirty years the method of training, as devised by those in authority, was based on theory only, without seeing the results of their labor tested in the great mill of experience.

And finally the test comes, and comes with a rush. Everything must be done at a moment's notice. No opportunity now to review the work when coming before the judge, no consulting of books, or set of rules, nor is there time for reference to the experience of others. There is no model, and the circumstances are never the duplicates of former ones.

And as quickly as it comes, just as quickly is it over, and the opportunities have been but fleeting. If not grasped at the time they may not return for another generation. If seen and appreciated there still remains the action to be determined upon—and all at a moment's notice. To provide a correct training for such cases is the difficult task of the Academy. The execution which stands as a test of the training, is usually accompanied by the greatest excitement, by confusion, by trying circumstances, and often under the greatest personal hardships. To insure quick and correct action under these conditions requires that the training must be thorough and well laid out.

And how has the Academy performed this task as measured by the results achieved in the Cuban and Porto Rican campaigns? Can there be a more pleasant duty than answering this query by recording the successes that were achieved by our arms?

But while the successes achieved by the fighting line and the history made by it are conspicuous monuments to the greatness of the Military Academy and the thoroughness of its training, the work done in that campaign was not all that was accomplished. The Academy had prepared its pupils along other lines, and it was with equal credit that the pupils acquitted themselves in the duties connected with the war.

An army, to be ready for its practical duties in the field, must be organized, equipped, and prepared. For the small Regular Army this was an easy task, and all regiments that could be spared from their stations were mobilized in the south of the United States April 15, 1898. But in less than two weeks the Regular Army was increased from 26,000 to 61,000 men, and certain necessary changes in organization, long neglected by Congress, were authorized. This, even in time of peace, meant an enormous work, but that also was quickly and satisfactorily accomplished. Twenty-nine thousand recruits were chosen out of 127,000 applicants, and all the work was done by Regular officers.

But in the meantime other work and duties had arisen that devolved upon Regular officers. On April 22 Congress authorized the President to increase the Army by volunteers, and the first call, for 125,000, was issued the next day. Several hundred officers were detailed for the very important duties of mustering officers, quartermasters, and commissaries. The work of mustering-in these volunteers was expeditiously performed, as was also that of supplying them with camp and garrison equipage, clothing, etc., and sending them to camps of concentration established in various parts of the United States.

Another severe drain on the supply of officers of the Regular Army was in the shape of commissions given them by governors in State regiments. By act of Congress such details were limited to not more than one for each regiment. Not all of the regiments had such details, but the leaven introduced in this way worked wonders in those fortunate enough to secure the services of a Regular officer.

On May 25 the President issued the second call for volunteers—75,000. Besides the 200,000 in these two calls, three

regiments of cavalry and a volunteer brigade of engineers—three regiments—were authorized and organized, bringing the total to 223,000 men. In all these a small proportion of the officers were taken from the Regular Army, the total number of graduates so detailed being 61.

These, however, were by no means all the details made. For the large army of 278,000, composed of Regulars and Volunteers, a considerable number of general officers and a suitable staff had to be provided. For these details the Regular officers were specially fitted, and in consequence the greater number were selected from this class. Of the 26 major-generals commissioned, 19 were taken from the Regular Army and 7 from civil life; of these latter, all but one were graduates from West Point. One hundred and two brigadier-generals were appointed; of these, 66 were taken from the Regular Army and 36 appointed from civil life, and of these, 7 were graduates of West Point. Of the Regular Army officers serving in staff positions 161 were graduates, and 130 graduates were serving in the staff corps of the Regular Army; so that the Academy supplied about 325 general and staff officers out of its 1,800 graduates living at this time. Many more were serving in staff positions, but not holding appointments in any department.

The organization, supply, and equipment of this army, fifteen times as large as the regular force, was a large task, and its successful accomplishment is a great tribute to the officers of the Regular Army and to the Academy.

Great difficulties were, of course, encountered in procuring supplies of all sorts, there being no reserve or surplus of any kind. All of the articles of equipment needed were of army standard and special design, and but few establishments in the United States were equipped to meet the demand. The Government factories, workshops, and plants were inadequately equipped to supply the articles, and private concerns were not prepared to manufacture them.

Despite the difficulties encountered, the work progressed so rapidly and so satisfactorily that by the end of April the War Department commenced the preparation of three large armies. Active operations were begun within two weeks

after this, and in less than two months after the declaration of war these armies were on their way to foreign countries, separated from the United States by distances ranging from 100 to 7,000 miles, and from each other by half the circumference of the globe.

During this time the defenses of the United States proper had not been neglected, but, on the contrary, the advent of war was the signal for a truly wonderful activity in this respect. On March 9 Congress appropriated, by unanimous vote, $50,000,000 for the purpose of national defense. Due to dilatory and grudging legislation, little had been accomplished before the war toward the execution of the perfected plan of coast defense, which would in the end require an expenditure of over $100,000,000.

In the consummation of a plan on such a large scale time was, of course, a principal factor, but thirteen years had been allowed to pass since the formulation of the plan and Congress had appropriated less than one-fourth of the sum required for its completion. When war finally came upon the country the conditions were changed. Appropriations were made without stint, but time was lacking. Even with the belated aid and lack of time the Engineer and Ordnance departments achieved remarkable results and greatly improved the situation in regard to the defense of our coast line. The activity shown and the results accomplished are another source of pride to the Academy in the work accomplished by its graduates.

Thus, while part of the Army was preparing for active operations in the field the remainder of the officers were not idle, but each was at work and contributed his share of earnest effort, which brought about the very quick ending of the war.

The number of officers detailed for these various purposes seriously depleted the Regular regiments, especially as they were made at a time when the Regular Army had been more than doubled in size. No provision was made for filling the vacancies thus created by additional officers, and as a result there was a scarcity of officers with all regular commands, somewhat to the embarrassment of the Army.

This condition of affairs, no matter how much it was to be deplored, did not, however, cause any hesitation or check in the plans for the employment of that army. The greater army was in time concentrated at Tampa, Fla., and from there finally started out on its campaign to Santiago. Many plans of campaign were considered, and in some cases preparation for their execution had already commenced; but all were changed, owing to various causes. The principal factor at this time became the Spanish fleet, which had left the coast of Spain early in May and was steaming westward. Until this fleet could be located no plan contemplating an ocean voyage of the Army could be undertaken. All remained in uncertainty, therefore, until May 19, when the fleet was located in the harbor of Santiago. Whatever plans of campaign may have been considered practicable heretofore, no plan could be given a moment's thought after the location of the fleet that did not have Santiago de Cuba for its object.

The orders directing the Fifth Army Corps to proceed were sent on the 31st of May, and on June 7 the transports started down Tampa Bay. The intervening time had been one of much arduous and incessant labor on the part of all concerned. The loading of the transports in so short a time was one of the great achievements of the war, and the energy and ability of all officers were taxed to the utmost. To understand the difficulties of this important work it is only necessary to remember that the Army had not been mobilized in years. The problem was a new one in all respects, and Port Tampa was ill adapted for the handling of an army and its supplies. The selection of Port Tampa as the point of embarkation was largely due to unforeseen circumstances, which arose too late to enable the War Department to make any change in the plans.

The fleet of transports, though ready to sail, with most of them in the channel, had to be recalled on account of rumors of the Spanish fleet. These rumors were very vague, and afterwards it became known that they were unfounded. Still they could not be disregarded, for no one, however reckless, and no matter how great the necessity, could or would take the responsibility of ordering the fleet over seas where one or

more of the enemy's ships might be encountered. Circumstances like these, trivial as they may seem when viewed in the light of subsequent knowledge, make war an uncertain game and cause changes in the best-laid plans. They necessitate new arrangements and infinite work in preparing for them.

The fleet in this case had nothing to do but wait, but the week so lost was one of the most trying intervals in the entire campaign. If this time could have been utilized in additional preparation, its loss would not have been so severely felt. The fact that all transports had to be ready at an instant's notice prevented the accomplishment of anything of a definite character.

On June 14, when fear of hostile ships had been allayed, the welcome order to proceed was finally given, and the Army again started; this time not to turn back until all the work had been done, victories gained, and the pledge given to the world, that "Atrocities in Cuba must cease," had been fully and honorably redeemed.

The sea voyage was uneventful except for the loss of some of the lighters, thus further crippling the means for debarkation which had been secured at Tampa. Guantanamo Bay was reached in the morning of June 20, and would have been a splendid base of operations. The plan for the capture of Santiago and the Spanish fleet in the bay were, however, conceived on bolder lines, and the distance from Guantanamo was prohibitive. It was proposed to land the army within striking distance of the enemy and to attack the city and upper end of the bay by a direct movement. The absolute success of the operation and the celerity with which results followed is the best proof that the plan was the correct one. Daiquiri was accordingly selected as the point for landing the entire force, though a part was later landed at Siboney when that point was covered by our advance. On June 22 the hazardous movement commenced, and the same evening saw some 6,000 American troops on Cuban soil.

The assistance of the Navy was of inestimable benefit and expedited the movement greatly. It was cheerfully

given, thankfully received, and thoroughly appreciated and acknowledged.

This was the first of many occasions during the Spanish-American war, when the Navy and Army met and by mutual aid and good fellowship cemented the friendship that exists between the sister services to-day. Both derived benefit from the close intimacy brought about by the war.

June 20 saw all the troops disembarked, but much remained to be done in bringing provisions and ammunition ashore. The Army had to depend entirely upon its own resources brought in the ships, for the country was devastated and could not maintain even a small foraging party, to say nothing of a large army about to engage in a desperate struggle for every inch of ground to its front.

Active operations were not neglected during this period of preparation, for no sooner had the Army set foot on soil than it proceeded with the task on hand. Siboney is some 7 miles from Daiquiri, and about 12 from Santiago de Cuba, the final objective of the campaign. It was imperative to occupy Siboney, and this was successfully done on the morning of June 23, less than twenty-four hours after leaving the transports. With the occupation of Siboney a good defensive position was secured, and this also afforded an additional point of landing for troops and supplies, greatly facilitating that operation.

Siboney was occupied without resistance, the Spanish withdrawing to a position less than a mile and a half from it. Their vicinity was a menace to our forces, and it was determined on the night of June 23 to make a reconnoissance in force and drive the enemy to a safe distance. This precipitated the engagement of Las Guasimas on June 24, in which our troops were victorious.

CAMPAIGN OF SANTIAGO DE CUBA.

The prediction of military men that wars would be short and that great results would follow quickly was fully vindicated in this campaign. So was also the prediction that hereafter individual action would count for more and that future battles would be fought by the company commanders. After

the campaign many critics ignored this fact and the conditions resulting from the application of modern tactics and the introduction of modern weapons. This condition of affairs was clearly foreseen and attention called to it frequently. Once the plan of battle decided upon and the regiments placed, the fighting line has to shift for itself and the course of action is shaped entirely on individual initiative. As the action progresses, control by the higher commanders is steadily decreasing, passing from the division to the brigade commanders, then to the colonels, and finally, when the opposing troops engage, to the company commanders. It is on this account that we so often hear it said that the battles around Santiago were fought by the company commanders.

The first bloodshed and the actual contact of troops occurred at Las Guasimas on June 24. The Spaniards were posted in a position that menaced the advance of our forces and the movement to dislodge them was decided upon immediately.

There were two approaches from Siboney to the Spanish position, which was approximately at the junction of the two; one was the main road to Santiago, the other a mountain trail. A column was put on each road and the plan of attack was to deploy into one line about 900 yards from the enemy's position. This was successfully accomplished and the attack opened. The Spaniards had chosen an excellent position and were able to deliver a galling fire, but our force was finally successful. The loss was 1 officer and 15 enlisted men killed, and 6 officers and 46 enlisted men wounded of the 960 men engaged.

This engagement served a most useful purpose in driving the Spaniards from the line of our advance to Santiago. No further fighting was done until the armies came to actual combat on July 1, but the intervening time was not idly spent. Stores of ammunition, provisions, etc., had to be unloaded from the transports, this operation now being rendered entirely secure by the advanced position of our forces. Even while this was going on the Army was preparing for the struggle. Reconnoissances were undertaken, sketches of the ground were made, the enemy's position accurately located, and all the information obtainable was gathered and collated for the

information of the commander. Means of transportation were being unloaded, supplies and ammunition pushed forward, and in fact everything was done that could be done to provide for a successful campaign.

The final plan of attack was again shaped to a certain extent by the location of roads. Only one road was available for the advance from Sevilla, but to the north lay the main road from Guantanamo to Santiago. This road had to be occupied, and a strong column was sent out for that purpose. Furthermore, there was upon this road a stone fort and a good position at El Caney, which the Spaniards had occupied and strengthened. An advance of our force along the southern road upon San Juan Ridge was therefore endangered as long as El Caney remained in the hands of the Spaniards. On the right flank of the advancing force El Caney had to be taken first, and on that basis the plan of battle was determined upon on the afternoon of June 30. The attack on El Caney was to be made early in the morning of the next day, and as soon as that point was carried the force so employed was to move to the south and extend our line posted in front of San Juan Ridge.

The maneuver, though carried out as originally planned, took much more time than had been counted on, and instead of being a mere incident in the battle became the center of as fierce fighting as any along the line. El Caney was a position well chosen for its excellent natural defense, and had further been rendered more secure by blockhouses, rifle pits, and obstructions of barbed wire.

The stone fort, which afforded excellent cover, was the key to the position, and added much to the morale and resisting force of the defenders. It was reported at the time—and this information was afterwards verified—that there were only 500 Spaniards at El Caney. They gave an account of themselves that would have done credit to three times their number.

The deployment of our force, consisting of three brigades composed of nine regiments and a battery of four pieces, was made between 4 and 5 o'clock in the morning and the action opened at 6.30 a. m. From this time until 4 o'clock in the afternoon the battle raged.

The loss was severe on both sides. Practically all the defenders fell, only 40 being able to make their escape and only 140 being captured out of the total garrison of 520 men. On our side the losses were 4 officers and 77 enlisted men killed and 25 officers and 335 enlisted men wounded. This tells the tale of the fearful struggle as eloquently as words can do.

The victory was complete. The entire garrison was destroyed, the position occupied, and the right flank of the army was secure.

During the engagement it had become evident that the movement against El Caney instead of being a mere flank march had become a military problem in itself. Efforts were therefore made to recall the troops from action and join them with the others in the principal attack on San Juan Ridge. This recall was found to be entirely impracticable and the attempt was abandoned. The attack once entered upon had to run its course and could only be stopped when the decision had been reached. It was in favor of our arms, and the troops thus liberated could now be withdrawn and used elsewhere. Orders for this movement were issued on the night of July 1, and at 3 o'clock the next morning the tiresome march of 15 miles was commenced. It took until noon of that day to cover the distance, and at that time the forces finally reached the position assigned them in the original plan of battle.

SAN JUAN.

It had been the intention to await the rejoining of the forces sent to El Caney before the attack on San Juan Ridge was to be made.

As stated, however, the operation at El Caney was not a trivial one to be completed in an hour or two, but consumed the entire day.

Before the forces could rejoin it was noon of the second day. The failure to return earlier, however, did not delay the attack on San Juan Heights. The Spanish position here was well chosen and afforded the defenders every advantage to be gained by careful selection of ground. Rifle pits had been

constructed along the entire line in places that afforded a good view and a good field of fire. On San Juan Hill was a blockhouse that afforded an excellent rallying point and materially strengthened the Spanish lines. Kettle Hill was somewhat in advance of the general Spanish line and was consequently the first objective of the Americans. The San Juan River flows approximately north and south and in front of the Spanish position. This river was much swollen by recent rains and was difficult to cross. Daylight found our army prepared to make the attack; the signal for this was to be the sound of firing in the direction of El Caney. At 8 o'clock the fight at that point was well under way and the advance was accordingly commenced.

As at El Caney and Las Guasimas, nothing could check the impetuosity of the American advance. Kettle Hill was quickly and gallantly taken. This was about the noon hour, and the second and main line was still intact. Not for long, however, as the American troops were all formed and ready to storm San Juan Heights. This was also accomplished in a dashing manner and victory again crowned the efforts of the army. The Spaniards withdrew to a second position about 800 yards in rear of the first and in the outskirts of Santiago. In this position, which was a most formidable one, they delivered a galling fire upon our troops in the positions they had so gallantly captured.

It now became necessary to intrench, as a further advance was out of the question. The army was thoroughly exhausted and could stand no further exertions. The losses had been severe; 15 officers and 127 enlisted men were killed, and 69 officers and 945 enlisted men were wounded. There had to be rest for this weary army to gather itself for renewed effort. During the night as much as possible was done to intrench the position, and the next day saw somewhat better conditions. Another great comfort on this day was the arrival of the forces that had been engaged at El Caney.

With July 2 the heavy rains of the season set in. It was not enough to be engaged in a death grapple with a formidable foe, but the weather added its share to render the conditions of the army almost unbearable. It was as severe

a test as could be given, but the army was equal to it and acquitted itself in its usual exemplary manner. During this trying day firing was kept up incessantly, and during the night several attempts were made by the Spaniards to recapture their position. These were always repulsed with heavy losses.

July 3 dawned the darkest of any day during the war. The capture of Santiago had not been effected and the conditions were not promising. It even looked rather doubtful whether the problem could be solved. And now occurred something entirely unlooked for and unexpected that changed the aspect of affairs and brought a cheer from the throats of the worn-out soldiers. At 10 o'clock that morning the Spanish fleet sailed out of the harbor of Santiago, and was promptly met and utterly destroyed by the American fleet. The victory was a glorious one, and wrought a wonderful change in the condition of the army in the trenches. Cheer upon cheer went up from the soldiers when the news of the Navy's accomplishment reached them. It practically ended the Santiago campaign. Except for firing on the afternoon of July 10 and the forenoon of July 11, hostilities ceased on the morning of July 3. From this date to the day of capitulation, July 17, was a tedious and discouraging wait for the army. The position in the trenches was maintained throughout the two weeks of negotiation. It seemed as if the agreement for the capitulation would never be reached, and both armies were kept in a state of constant preparation to resume hostilities. Such an outcome was avoided, however, and on July 17 the capitulation of the province of Santiago went into effect.

For the present nothing remained to be done but take possession of the city and to accept the surrender. These ceremonies were conducted on the morning of the 17th and concluded with the raising of the Stars and Stripes on the Government Palace in Santiago de Cuba.

Even now it is hard to believe that only a month had elapsed since the start at Tampa until the campaign was over and the task assigned had been thoroughly and satisfactorily accomplished.

OCCUPATION OF CUBA.

On July 16 the articles of capitulation were signed and the surrender of the division of Cuba became an accomplished fact. The task was well accomplished, but who can calculate correctly with circumstances in war and prepare to meet all contingencies? A new foe now made his appearance. The dreaded yellow fever had broken out, and on July 12, four days before the capitulation, 100 cases had appeared in camp. Here was an army exhausted by the campaign, reduced in condition by hardships and exposure undergone, with 75 per cent either subject to or recovering from malaria, ill-supplied at best, and now came the problem how to combat the dreaded yellow fever. There was only one course possible and that was to send those not affected by fever to the United States. Montauk Point was selected for the convalescent camp and everything done to prepare it for the returning heroes. On August 1 orders were issued to send back the cavalry division, and these orders were followed by instructions, sent August 3, providing for the repatriation of the entire Fifth Army Corps. Here again came work of a special character to be performed under discouraging and untoward circumstances. The expertness and fine training of the Army was again called upon to make up for deficiencies that could not be supplied because of lack of time. By the end of August the members of the Fifth Army Corps, or what was left of them, were again on United States soil, to be nursed back to strength, the regiments to be reorganized and prepared for further heavy tasks of which these troublous times seemed to have no end.

Cuba, however, was not left to itself, nor was the duty required of the Army accomplished with the withdrawal of the Fifth Corps. Work of a new kind now appeared for that new army which took the place of those who had done the fighting. In the mighty task of evolving order out of the chaos brought about by the defeat of the Spaniards in Cuba the Army justly claims the credit. A government had to be reared to take the place of the one overthrown, and for this duty the Army was well fitted, and applied itself

with its usual diligence and accomplished the usual far-reaching and great results.

Here was an entirely new field of action. Routine duty in time of peace does not touch upon civil administration; in fact army officers are ordinarily credited with knowing little or nothing of city and State government. But the work of the Military Academy has been well done, and no matter how unfamiliar the task or how new the duty it was taken up with the usual courage and handled with the same intelligence that has always characterized the work of our Army, no matter what it may have been.

The task of establishing a republican form of government for the entire island of Cuba was one attended by many difficulties and obstructions. There was a radical change not only in the form of government, but in every part of the administrative departments. The faults of the Spanish method are too well known to require enumeration, and these faults and the attending evils that had crept into the administration of affairs in Cuba had to be eradicated, tooth and nail.

What body of men could be found that could undertake this herculean task better than the officers of the Army? Trained in absolute accuracy, true to every trust imposed upon them, immaculate in their conception of honesty and straight dealing, tested and never found wanting, imbued in every fiber with sound judgment and absolutely correct appreciation of justice, the selection of this corps of officials could not be surpassed. The purpose was to remove the taint of maladministration under Spanish rule and to introduce a republican form of government, in its purest state, for the future example for the free Cuban people.

"Cuba," Congress declared, "should and by right ought to be a free and independent State," but how much more that meant than simply driving out the Spaniards can only now be appreciated when we look back upon the years of toil that followed the evacuation of the island.

When finally the United States withdrew from Cuba, it left the people not only released from the Spanish yoke, but also free in every sense of the word; the Government was

intact and running smoothly, the revenues were honestly and economically administered, police protection was provided for, sanitary protection—the one thing needed more than any other—developed nearly to perfection; in fact, provision had been made for every want.

PORTO RICAN CAMPAIGN.

Though not as important as the Santiago campaign, the expedition against Porto Rico was by no means an easy undertaking. It involved, in the first place, a sea voyage of 1,200 miles, a landing in a strange country, with the possibility of opposition by a hostile force, the establishment of a base, and then a campaign on foreign soil and in a tropical climate. There was the advantage that the campaign would be conducted in a friendly country, the Porto Ricans being tired of the irksome Spanish yoke and ready to welcome the liberating army of invasion. Porto Rico was a Spanish possession, and while it exercised no influence on the causes of the war yet as soon as war was declared the island became an objective as much as ever Cuba could be. From the very start, therefore, the general plan of the campaigns in the West Indies included an attack upon Porto Rico. Success would mean the crippling of Spanish power, and the quicker and harder the blows the sooner would Spain sue for peace and thus end the war.

Before the corps at Tampa was ready, preparations for the expedition to Porto Rico were well under way, but it was not until June 26 that the final instructions were issued from the War Department. It had been the intention to utilize all or a part of the Fifth Army Corps for this new expedition, as soon as it could be spared from the task at Santiago. Subsequently this was found to be impossible, for the appearance of yellow fever in the camps precluded their further journey or their intermingling with fresh troops from the United States. On July 8 the first part of the expedition sailed from Charleston, comprising between 3,000 and 4,000 men. This force went first to Guantanamo, Cuba, where it was expected that it might be needed as reenforcement for the Fifth Corps. On July 21, four days after the capitulation of Santiago, the

MORRO CASTLE, SAN JUAN DE PUERTO RICO.

expedition finally set sail. On July 20 and 24 additional forces of 3,500 and 2,900 set sail from Charleston and Tampa, respectively. It had been understood that the landing was to be made at Point Fajardo, but this was only a ruse to mislead the Spaniards, and it was decided to disembark the army in the harbor of Guanica. This movement was thoroughly successful, only very slight opposition being met with and the landing was made without loss. The harbor was a good one, with deep water close to the shore line and the operation of disembarkation was comparatively easy. An advance was immediately made on Ponce, and after a spirited skirmish the latter place was occupied and the American flag raised. This gave another point of landing, and the second and third expeditions were disembarked there July 28 and 30.

Yet another expedition left Newport News on July 28, and upon its arrival was directed to Arroyo, 45 miles east of Ponce. The arrival of this last fleet, August 3, gave a total force of 15,200 men. The time between the landing and August 8 was spent in preparation and in arrangements for the execution of the plan decided upon. In Cuba there had been a definite objective; here in Porto Rico it was different. While San Juan, the capital, was the ultimate objective, the entire island was to be included in the theater of operations, and columns were sent out in different directions to accomplish the overthrow of the Spanish military power. It was a comprehensive and well-devised scheme and would have quickly brought about the desired result.

The Spanish forces, driven out of Ponce and the surrounding territory, took up a strong position on the San Juan-Ponce Road at Coamo and Aibonito. It was necessary to dislodge these forces, and two columns were directed against them from Ponce. A third column coming from Arroyo was directed against Cayey, a small town in rear of Aibonito. Slight opposition to this latter column was developed at Guayamo, and again on the mountain road from the latter place to Cayey. Both places were quickly taken with the loss of only 12 wounded, and this column moved on the Spaniards, who had taken a strong position to guard Cayey. Here a turning

movement was in progress when the notification of the cessation of hostilities was received.

In the meantime the columns advancing on the main military road had come upon the enemy at Coamo, and by a successful flank movement had dislodged them there. The Spaniards then withdrew to the strong position at Aibonito, which had been rendered secure by intrenchments. Another flank movement was decided upon and this was well under way when it was stopped by the news of the signing of the protocol. The total casualties of this column were 2 men killed and 2 officers and 3 men wounded. Two other columns had started on August 8 to complete the overrunning of the entire island. One of these columns proceeded from Ponce approximately north toward Aricebo. The principal objective was reached by the mountain pass leading through Adjuntas and Utuado. The purpose of selecting this route was to cut off the retreat of the Spaniards from the vicinity of Mayaguez and Lares toward San Juan. Although no opposition was met, the progress of this column was impeded by bad roads and difficult mountain trails, and Utuado was reached only on August 12. The next day the news of peace stopped further advance.

The westernmost column was organized at Yauco and left that place on August 9, the entire force numbering 1,500 men. To the lot of this column fell the heaviest fighting on the island, but, as in other cases, they acquitted themselves well, and victory crowned every effort. The plan was to advance through San German to Mayaguez, then through Lares to Arecibo. San German was occupied on the morning of August 10, and here it was learned that the Spaniards had advanced from Mayaguez to the vicinity of Hormigueros to resist the American advance. The American column advanced immediately and engaged the enemy, who had the choice of position. This availed the Spaniards little, for by a skillful disposition of our forces they were compelled to withdraw with a heavy loss. The American loss was 2 enlisted men killed and 1 officer and 14 enlisted men wounded. On the morning of August 11 the Americans occupied Mayaguez. The pursuit of the retreating enemy was undertaken immediately, but it was not until August 12 that the opposing forces again

encountered each other. This was near Lares. Further operations of this column were suspended with the receipt of the news of the signing of the protocol.

This short résumé of the Porto Rican campaign gives an idea of the cleverness of the plan and the thoroughness with which the details were carried out. If its consummation had not been stopped by the signing of the protocol, there is no doubt but that the campaign in Porto Rico would have included many other victories for our arms.

About 120 graduates of the Military Academy took part in the campaign of Porto Rico, thus again giving the representatives of our alma mater a large share in the operations and affording another proof of the thoroughness of their training.

The protocol between the United States and Spain was signed on August 12 and no further hostilities took place. The treaty of Paris, which was not signed until February, 1899, finally restored friendly relations between the two countries. As a result of this treaty Porto Rico was turned over to the United States. The occupation of Porto Rico subsequent to the fighting and the installation of a republican form of government went on quickly, and the efforts of the Army in this work were crowned with success. Porto Rico is at present designated as one of the island possessions of the United States, and is tranquil and content. How completely and how thoroughly the work of the Army was accomplished in this task of reconstructing the government and institutions of Porto Rico can be assumed from the fact that no army of occupation is needed, but the island provides for its own security in every respect.

THE SERVICES OF GRADUATES IN THE PHILIPPINES.

I. Military Operations, by Lieut. Edwin R. Stuart, Corps of Engineers, U. S. Army (U. S. Military Academy, 1896).—II. The Pacification of Batangas, by Capt. Herbert A. White, Eleventh Cavalry, U. S. Army (U. S. Military Academy, 1895).

NOTE BY THE EDITOR: The committee of the Academic Board in charge of the memorial volume has not been able to carry out its original plans with respect to this chapter. As early as March, 1902, an invitation to write the history of the services of the graduates in the Philippines was sent to an officer of high rank and competence who, unfortunately, felt obliged to decline it on account of his duties; and other invitations of the sort have been sent from time to time to five other officers, all of whom were likewise obliged to decline, with regret, on account of the pressure of official work. The dispatch of letters to the Philippines and to other stations, and the consequent delays, consumed many months, and ended in disappointment. The committee was so fortunate as to secure from Lieutenant Stuart an excellent résumé of the military operations in the islands, which is here printed. But the history would be incomplete without an adequate account of the splendid administrative work accomplished by the graduates in all parts of our new possessions. The story is most honorable to all concerned, and of absorbing interest. The Army was suddenly placed in positions of immense responsibility and charged with entirely new duties, among a people of foreign race, laws, language, religion, and manners. Nothing in its past experience had prepared it for the novel conditions, which required the highest degree of intelligence, courage, resourcefulness, and sympathy on the part of the new rulers. Officers in high command governed provinces as large as European states and supervised millions of people; young lieutenants just out of the gray jackets of the Academy were charged with the welfare of thousands in the barrios. In every case the new responsibilities were met with courage, intelligence, and good will; in a great proportion with real skill, insight, and sympathy. The instant needs of each moment were met and wise plans for the future developed. The plans devised by the military arm of the Government were, in due time, approved and accepted *without change* by Congress and became the policy of the country.

The whole history is admirably summarized in the following paragraph from an address by the Hon. Charles E. Magoon, of Nebraska, and is more fully given in General Orders, No. 66, series of 1902, here printed.

THE BATTLE NEAR SANTA ANA, FEBRUARY 5, 1899.

"An examination of the great work performed in the Philippines in the development of government, the promotion of commerce, the revival of industry, the establishment of schools, courts, and other means of promoting the peace of society and advancing the progress of civilization, reveals the remarkable and gratifying fact that the work was accomplished by exercising the military powers of the sovereignty of the United States. The Army, organized, trained, and equipped for the work of destruction, was made an instrument of construction. The enginery of war was utilized as an agency of peace. That which was fashioned to overthrow and expel one government was devoted to the purpose of erecting another. The war powers of this nation, which are outside the limitations of our laws and Constitution, knowing nothing of their restrictions, bound only by the discretion of the commander-in-chief and the practices of civilized warfare, were effectively used to construct out of and for an alien and recalcitrant, oriental people, ignorant of our form of government, and of the principles upon which it is founded, a government, incorporating and inculcating the principles and theories which have made the United States the foremost among the nations of the earth. So wisely, so justly, so efficiently were these war powers used in building up the government of the Philippines, that when the Congress of the United States was called upon to provide legislation for civil government in those islands, that honorable body was unable to discover any improvement upon the government created by executive action by exercise of the war powers, and adopted and approved said government in whole and in part, and ratified and confirmed its every act and policy."

GENERAL ORDERS, No. 66.

HEADQUARTERS OF THE ARMY,
ADJUTANT-GENERAL'S OFFICE,
Washington, July 4, 1902.

The following has been received from the War Department:

WAR DEPARTMENT, *Washington, July 4, 1902.*

To the Army of the United States:

The President upon this anniversary of national independence wishes to express to the officers and enlisted men of the United States Army his deep appreciation of the service they have rendered to the country in the great and difficult undertakings which they have brought to a successful conclusion during the past year.

He thanks the officers and the enlisted men who have been maintaining order and carrying on the military government in Cuba, because they have faithfully given effect to the humane purposes of the American people. They have with sincere kindness helped the Cuban people to take all the successive steps necessary to the establishment of their own constitutional Government. During the time required for that process they have governed Cuba wisely, regarding justice and respecting individual liberty; have honestly collected and expended for the best interests of the Cuban people the revenues, amounting to over sixty millions of dollars; have carried out practical and thorough sanitary measures, greatly improving the health and lowering the death rate of the island. By patient, scientific research they have ascertained the causes of yellow fever, and by good administration have put an end to that most dreadful disease, which has long destroyed the lives and hindered the commercial prosperity of the Cubans. They have expedited justice and secured protection for the rights of the innocent, while they have cleansed the prisons and established sound discipline and healthful conditions for the punishment of the guilty. They have reestablished and renovated and put upon a substantial basis adequate hospitals and asylums for the care of the unfortunate. They have established a general system of free common schools throughout the island, in which over two hundred thousand children are in actual attendance. They have constructed great and necessary public works. They have gradually trained the Cubans themselves in all branches of administration, so that the new Government upon assuming power has begun its

work with an experienced force of Cuban civil-service employees competent to execute its orders. They have borne themselves with dignity and self-control, so that nearly four years of military occupation have passed unmarred by injury or insult to man or woman. They have transferred the government of Cuba to the Cuban people amid universal expressions of friendship and good will, and have left a record of ordered justice and liberty, of rapid improvement in material and moral conditions and progress in the art of government which reflects great credit upon the people of the United States.

The President thanks the officers and enlisted men of the army in the Philippines, both regulars and volunteers, for the courage and fortitude, the indomitable spirit and loyal devotion with which they have put down and ended the great insurrection which has raged throughout the archipelago against the lawful sovereignty and just authority of the United States. The task was peculiarly difficult and trying. They were required at first to overcome organized resistance of superior numbers, well equipped with modern arms of precision, intrenched in an unknown country of mountain defiles, jungles, and swamps, apparently capable of interminable defense. When this resistance had been overcome they were required to crush out a general system of guerrilla warfare conducted among a people speaking unknown tongues, from whom it was almost impossible to obtain the information necessary for successful pursuit or to guard against surprise and ambush.

The enemies by whom they were surrounded were regardless of all obligations of good faith and of all the limitations which humanity has imposed upon civilized warfare. Bound themselves by the laws of war, our soldiers were called upon to meet every device of unscrupulous treachery and to contemplate without reprisal the infliction of barbarous cruelties upon their comrades and friendly natives. They were instructed, while punishing armed resistance, to conciliate the friendship of the peaceful, yet had to do with a population among whom it was impossible to distinguish friend from foe, and who in countless instances used a false appearance of friendship for ambush and assassination. They were obliged to deal with problems of communication and transportation in a country without roads and frequently made impassable by torrential rains. They were weakened by tropical heat and tropical disease. Widely scattered over a great archipelago, extending a thousand miles from north to south, the gravest responsibilities, involving the life or death of their commands, frequently devolved upon young and inexperienced officers beyond the reach of specific orders or advice.

Under all these adverse circumstances the army of the Philippines has accomplished its task rapidly and completely. In more than two thousand combats, great and small, within three years, it has exhibited unvarying courage and resolution. Utilizing the lessons of the Indian wars, it has relentlessly followed the guerrilla bands to their fastnesses in mountain and jungle and crushed them. It has put an end to the vast system of intimidation and secret assassination by which the peaceful natives were prevented from taking a genuine part in government under American authority. It has captured or forced to surrender substantially all the leaders of the insurrection. It has submitted to no discouragement and halted at no obstacle. Its officers have shown high qualities of command, and its men have shown devotion and discipline. Its splendid virile energy has been accompanied by self-control, patience, and magnanimity. With surprisingly few individual exceptions, its course has been characterized by humanity and kindness to the prisoner and the noncombatant. With admirable good temper, sympathy, and loyalty to American ideals its commanding generals have joined with the civilian agents of the Government in healing the wounds of war and assuring to the people of the Philippines the blessings of peace and prosperity. Individual liberty, protection of personal rights, civil order, public instruction, and religious freedom have followed its footsteps. It has

added honor to the flag which it defended, and has justified increased confidence in the future of the American people, whose soldiers do not shrink from labor or death, yet love liberty and peace.

The President feels that he expresses the sentiments of all the loyal people of the United States in doing honor to the whole Army, which has joined in the performance and shares in the credit of these honorable services.

This General Order will be read aloud at parade in every military post on the 4th day of July, 1902, or on the first day after it shall have been received.

ELIHU ROOT, *Secretary of War.*

By command of Lieutenant-General Miles:

H. C. CORBIN,
Adjutant-General, Major-General, U. S. Army.

The history of the pacification of the various provinces is yet to be written. We are fortunate in being able to present such a history for one of them. The work of Gen. Franklin Bell (U. S. M. A., 1878) was seconded by every officer in his command, graduate and non-graduate alike. The problem so magnificently solved by him was of the same nature as those presented to others in every province of our new dependency. When that history comes to be fully written it will reflect the highest credit upon all concerned in its solution.

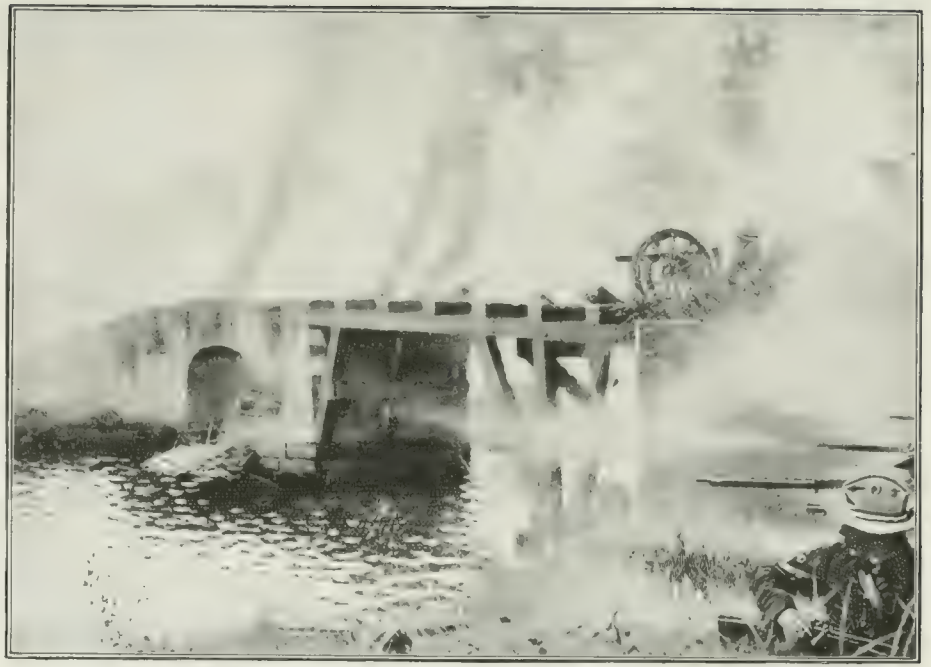
MILITARY OPERATIONS IN THE PHILIPPINES, 1898-1902.

By Lieutenant EDWIN R. STUART,

Corps of Engineers, U. S. Army; U. S. Military Academy, 1896.

CAVALRY PRIVATE, INDIAN CAMPAIGN, 1870.

AFTER the destruction of the Spanish ships on May 1, 1898, the city of Manila lay under the guns of the United States fleet. On the land side of the city was posted a hostile Filipino force equal in number to the garrison. The situation was hopeless for the Spanish. The presence of a sufficient number of United States troops to garrison the city was all that was necessary to force a surrender. Early in August the necessary troops arrived from the United States, and on August 13 the city was surrendered after a slight resistance to an attack of the troops supported by the fire of the fleet. The insurgents entered the city with our troops, and only after two months of irritating negotiation, accompanied at times by threats of forcible expulsion, were they dispossessed. It is now known that even at this time the Filipinos were planning resistance to the authority of the United States in case the war with Spain should result in the occupation of the islands by the United States. Consequently the time that intervened between the surrender of Manila and the outbreak of hostilities with the insurgents was one of most exasperating tension, and caused the organization and transportation to Manila of additional forces. Upon their arrival the Eighth Army Corps was organized.



THE FIGHT AT ZAPOTE RIVER, JUNE 13, 1899.

The commanders were as follows:

Eighth Corps: Maj. Gen. E. S. Otis. First Division, Major-General Anderson: First Brigade, Brigadier-General King; Second Brigade, Brigadier-General Ovenshine. Second Division: Major-General MacArthur; First Brigade, Brig. Gen. H. G. Otis; Second Brigade, Brigadier-General Hale. First Separate Brigade, Brig. Gen. M. P. Miller.

This organization was expanded in March, 1899, by the addition of one brigade under General Wheaton to the First Division, and one brigade under General Hall to the Second Division, formed of other troops from the United States. Hostilities with the insurgents were precipitated on the evening of February 4, 1899, by a picket firing on an insurgent who refused to halt. The firing was continued during the night, and the next morning our troops assumed the offensive and drove back the insurgents. The pumping station was occupied, and the capture of Caloocan on February 10 established the forces in a good position about Manila. General Miller's brigade, which had been sent to Iloilo, Panay, in December, now occupied that place. In a number of engagements in the vicinity of Manila the insurgents were defeated, and the provost guard kept the insurgents in the city in check.

Sufficient force was present for aggressive action. Manila, Cavite, and Iloilo were strongly held. The operations thenceforth consisted of expeditions or campaigns to effect the capture of some organized insurgent force, the occupation of some place where protection was desired, or the relief of Spanish garrisons, which by the terms of the treaty of peace were to be repatriated.

The first of these expeditions was commanded by General MacArthur, and comprised the brigades of Gens. H. G. Otis and Hale. This expedition was at first conducted with the object of capturing the insurgent force north of Manila, but the turning column had not cut off the retreat of the insurgents when they were driven northward by General Wheaton. The pursuit of the insurgents northward along the railroad was continued as far as San Fernando. Actions were fought at Calumpit and Balinag. The movement was assisted by an independent column of about 4,000 men,

under General Lawton, operating to the east of the railroad. The approach of the rainy season and the return of the State volunteers prevented further aggressive action at this time. Most of the conquered territory was held. Cebu, island of Cebu, and Bacolod, island of Negros, and Jolo, island of Jolo, were occupied at this time, but the garrisons were too small to accomplish anything beyond the occupation of the towns.

By the seizure of some gunboats the insurgents in Mindanao got possession of a considerable supply of arms and ammunition, rendering the relief of the Spanish garrison at Zamboanga by a small force impossible, and it was abandoned. The town was later captured by the Navy and garrisoned by troops drawn from Jolo.

The diminution of our forces by the return of the State volunteers enabled the insurgents to undertake aggressive action, and punitive expeditions were sent to Morong, under General Hall, and to the south of Manila, under General Lawton. Only minor operations were undertaken during July and August. In October the regiments of United States Volunteers began to arrive, and the force increased to a maximum of about 55,000 at the end of January, 1900.

The first aggressive action by the augmented force was begun about the middle of October, 1899. The plan was for General MacArthur to keep the insurgents occupied north of Manila while the insurgents could be surrounded by sending General Lawton to the east and north, then to swing westward and unite with a force under General Wheaton, which was to be landed at San Fabian, on the Gulf of Lingayen. These operations were delayed by various causes, and before the forces of Generals Lawton and Wheaton united Aguinaldo and his followers escaped to the northward. The insurgent army immediately disbanded, and the resistance from this period on consisted principally of guerrilla warfare. Generals Lawton and Wheaton began the pursuit of Aguinaldo, but did not succeed in capturing him. The United States troops soon overspread the entire northern end of Luzon.

General Wheaton was placed in command in northern

Luzon, and General Lawton returned to Manila. While leading a small expedition against Mateo General Lawton was killed in December. An expedition against the insurgents in southern Luzon was then undertaken. General Bates was placed in command, the two columns engaged in the operations being under Generals Wheaton and Schwan. The general plan and the results were similar to those in northern Luzon. The southern and southwestern parts of Luzon were then occupied.

An expedition under Gen. J. F. Bell was then sent to Camarines Province and later scattered garrisons over Mindanao. From this time forward no resistance requiring the concentration of large bodies of troops was encountered, and the force in the island was gradually scattered to better prosecute the work of police restraint, the repression of the ladrones, and the pursuit of small bands of insurgents.

Between January and June, 1901, the United States Volunteers returned to the United States and were replaced by a reduced number of Regular troops. The dissemination of the troops reached its greatest degree in March, 1901, when there were over 500 separate garrisons in the islands.

The effective resistance in the islands was entirely subdued by the close of the year 1900, and a further effective blow was struck at the insurgent power by the capture of Aguinaldo on March 23, 1901, by an expedition under General Funston, carried out with the assistance of native troops.

General MacArthur succeeded General Otis in command, and was in turn succeeded by General Chaffee. Under these two officers the work of stamping out the resistance of the insurgents has been effectively continued. Gradually the natives have been disarmed and civil government substituted for the military government, until quiet reigns in the archipelago with few exceptions, and these exceptions will soon cease to exist.

THE PACIFICATION OF BATANGAS.

By Captain HERBERT A. WHITE,

Eleventh United States Cavalry, U. S. Army (U. S. Military Academy, 1895).

TO FULLY understand the question in all its phases, and particularly in those that show the need of the concentration system, it will be necessary to explain the methods which enabled the insurgents to keep up their warfare and also to explain the kind of warfare that it was. In submitting this explanation to the people of the United States I shall draw from captured insurrecto correspondence and papers that came into my office during active operations, and I shall also quote from declarations submitted to the provost-marshal of the brigade by the leading men of Batangas. After showing the means whereby the insurrecto officials raised the funds necessary to carry on the war and the readiness with which these calls for funds were responded to, this explanation will then show when and how the concentration system was started, its effect upon the natives to whom it was applied, and its result upon the war.

At the time General Bell assumed command of the Third Separate Brigade, about December 1, 1901, all provinces of the brigade, which included Batangas, Laguna, Tayabas, Cavite, and the island of Mandoro, as well as some adjoining provinces, were in a state of insurrection under the chief, Miguel Malvar. In a wordy declaration after the capture of Aguinaldo Malvar declared himself jefe-superior April 19, 1901, and as such was recognized by other chiefs and by the Hongkong junta, which organization, on receipt of Malvar's declaration, put out, on May 31, 1901, a large placard with

the headlines "Malvar no se Rinde"—Malvar does not surrender.

Malvar on April 28, 1901, issued a general order, called "General Dispositions and Instructions," that were to be followed in Luzon and in the other islands under his command. This was the first of a series of such general orders that was issued by him from April 28, 1901, to December 19, 1901. The second of these General Dispositions and Instructions, dated June 25, 1901, deals largely with the means of collecting money, supplies, and arms, and is given here in full as well as some extracts from the first order, issued April 28, 1901.

The American authorities were acquainted with these papers, copies of them having fallen into the hands of the military at different times, and the entire set, some of them the originals, was secured by Captain Bamford when he captured General Noriel and came so near getting Malvar, on March 23, 1902, as to secure his papers and personal effects.

In the First General Disposition we find the following:

Chiefs of zones or provinces are empowered to accept monthly as an ordinary war contribution 70 cents from each man and 30 cents from each woman, which contributions will not affect the extraordinary contributions which are required by abnormal circumstances.

The Second General Disposition is as follows:

In order to cover the losses produced by the continued desertions from this time on in any pueblo not having an organized force of our army, the citizen who is able to get together from 8 to 10 rifles to fight the enemy will be considered a second lieutenant of infantry; 11 to 24 rifles, first lieutenant; 25 to 49 rifles, captain; 50 to 99 rifles, major; without other requisites than that of notifying these headquarters. These organizations will be governed by dispositions and instructions of the headquarters. All appointments heretofore made by Señor Aguinaldo and from these headquarters are confirmed, even when the number of rifles does not correspond to the above category.

The officer who shows the most prestige and sympathy in his zone or province and shows the most intelligent activity, energy, and honor, will be commander of the same.

In addition to the ordinary contributions to the war in coin, the military administrator will collect 10 per cent of the crops for the army and national defense, collecting by force if necessary.

The priests will contribute $1.50 monthly for every thousand souls under their charge. No one will be allowed to marry without having contributed one or more rifles, according to his position and fortune.

Anyone turning over arms to the enemy after July 10, in addition to being considered a traitor, will be obliged to turn over the number of arms he has surrendered, and if he can not do this, $250 will be collected for every rifle surrendered; and in case of insolvency his lands or property will pass into the hands of the military administrator and will be used for the purchase of new arms and for the assistance of the widows, parents, and sons of our soldiers killed in the defense of the country, or wounded in the same.

In addition to these, extraordinary contributions were levied for the national defense, and many of the subordinate chiefs levied contributions to supply their immediate needs and those of their soldiers. These taxes were collected by "pangolas," (tax collectors) in each barrio, a barrio being something like our township, only much smaller in area. These pangolas were required to return a certain sum, depending upon the wealth and number of people in their barrios.

Forced enlistments were also made, though an individual was exempted from military service on the payment of an amount varying from 10 to 20 pesos. Licenses were also issued, even in towns where troops were stationed, and the cockpits were regular contributors to the insurrecto fund. A tax was also levied on the officials of the pueblos and the provinces, and an official often found himself in sore straits, having to furnish a goodly portion of his salary to the insurrectos.[a]

This system of taxation was in full operation on December 1, 1901, and was being forced in every town, not excepting the towns where military government under the American troops was established.

When Malvar surrendered he was required to report every morning at the office of the brigade provost-marshal (Captain Boughton), where questions were continually coming up that he could answer better than anyone else. The first morning I took from him a statement regarding affairs in the Third Brigade, and also in all the territory commanded by him. He

[a] See extracts from the declaration of Pedro Pastor given later.

gave me the following information respecting his system of conducting the war.

He had, during the latter part of 1901, 2,500 effective guns. This would imply 2,500 soldiers actually armed with guns. According to the insurgent method, one additional man armed with a bolo accompanied each rifleman to take the rifle in case the rifleman was wounded.[a] This would imply 5,000 men actually in the field belonging to the regular force. In addition each barrio had a company of bolomen, varying from 10 men upward, armed with bolos; and every able-bodied man above the age of 16 not thus employed was classed among the reserves and was liable to be ordered out at any moment.

The theater of war was divided into zones, corresponding somewhat to our departments or brigades, only very much smaller, and over each zone was a general or colonel, and in some cases a lieutenant-colonel. The following are the zones actually under Malvar and the commanders who worked under his orders:

Zone.	Commander.	Rank.
Oriental Batangas	Casala	Colonel.
Occidental Batangas	Marsigan	Lieutenant-colonel.
Lipa and Binan	Gonzales	General.
Laguna	Caballes	Colonel.
Morong	Asuncion	Do.
Oriental Tayabas	Marques	Do.
Occidental Tayabas	Mayo	Lieutenant-colonel.
Alaminos, Bay, Calauang	Ramos	Colonel.
Mindora	Atienza	Do.
Department of the South	Lucban	General.
Visayan Islands	Maxilom	Do.
Cavite	Noriel	Do.
Infanta	Ascarraga	Do.

These commanders probably never had more than 250 to 300 men in one place at any one time, but were simply carrying on guerrilla warfare. In General Dispositions, No. 1, Malvar ordered that engagements be abstained from until there was notice of a general movement. They realized the correctness

[a] The writer found this system carried out in a small engagement he had with the insurgents in Tayabas during February, 1902.

of Pedro Pastor's advice and acted upon it; that regular battle should never be given the Americans, because they would always conquer and annihilate the insurgents. They never made an attack unless they occupied superior advantages as regards position, and they never engaged in an open fight.

Moreover, the men we fought to-day would probably be the amigos in the streets to-morrow, their guns and bolos hidden, and they themselves back in town until again called out by their chiefs. Should the Americans come upon an insurrecto, unless caught red-handed with a gun in his hand, he would plead that he was a friend and was simply working in the fields or else passing to market, or one and all of a thousand specious lies invented to deceive the Americans.

I quote quite freely from the confession of the presidente of Batangas, Jose Villaneuva, one of the ablest Filipinos in the islands, and also from the confession of Pedro Pastor, clerk of the court of the first instance for the seventh judicial district. They are but samples of what was being done continually throughout the brigade. The provost-marshal's desk is full of similar ones from the leading men of Batangas, and the provost judges of other towns have received the like from the leading men of their sections. A collection of them would make a large book and one scarcely to be equaled in the tales of treachery and deceit that surrounded the American troops during their entire stay in the islands, and made success impossible in any system of warfare except the concentration system, which cut off supplies and contributions formerly enforced by the insurgents.

[*Extract from the declaration of Villaneuva, who was presidente of Batangas under the insurgent government.*]

Before the entrance of the Americans, the Filipino military men requested all the arms and ammunition of the police, and also the members of the force. I had charge of only one corporal and four or five guards for the transmission of messages. After the entrance of the Americans (into Batangas), I sent these police with a letter to the military commander consenting that they enter the service of the insurgents, and if they did not they could leave their guns in the mountains where Colonel Rillo was stationed.[a] A Mauser rifle, my property, was given

[a] Colonel Rillo at this time was chief of the oriental zone of Batangas, he died shortly afterwards and was succeeded by Casala

to the corporal, who had stayed by my side till the entrance of the Americans. Another gun, a carbine which I had in trust for Father Jacinto, curé of the city, was afterwards lost in a deep fissure in the mountains.

From the time of my surrender to Colonel Anderson I was sometimes in an anomalous condition, as in the meantime other presidentes of some cities continued in their office or with the military, but I considered I was without authority and fit only for agriculture. Many citizens, notwithstanding, recognized me yet as before, and also some cabezas (heads of barrios) came to me for consultation.

I received an order from Colonel Rillo, convoking a great conference and ordering me to attend. I went to the said conference, in the mountains in the vicinity of the barrio of San Miguel, and there met Señor Rillo, who did not wish or care to leave his hiding place, and only took office to preside at the meeting, to determine, if I do not forget, the form of collecting contributions for a war fund.[a] In all there was much said to the people, which tended to reunite their respect for property, fraternity, and constancy in their work, as there had been many excesses committed on this class. It was agreed to collect from the citizens a contribution equal to the cedula tax in the time of the Spaniards.

In one of the conferences which I attended I turned over to Captain Nicomedes 70 pesos which came, as I remember, from a local fund which was in charge of Pedro Pastor.

I returned to live in the fields to avoid being though an Americanist, because at that time the papers were beginning to speak of these as well qualified for laudable assassination.

Some time after this, one or two months, I received a communication from Crisanto Borruel, major of insurgents, requesting that the cabeza of the barrio of either Tinga or San Pedro, I do not now remember which, should be displaced on account of poor services. I answered conforming to this in everything, as I did not feel able to tell them that I would have nothing to do with them. About this time I received an order for money to the value of 20 pesos, as I remember, but I gave only 15 pesos and about a month later I received another order to which I replied by giving 8 pesos.

In March, which is the month for harvesting sugar cane, I received notice about an order from General Malvar requesting sugar by way of contribution for the troops from all owners of sugar mills. My father then prepared under my orders a pair of kerosene oil cans full for this contribution, and unquestionably it was given, though I never received a receipt.

In April or May of the same year, 1900, the lieutenant of the barrio collected a contribution of palay (rice in the husk). I sent 5 pesos in place of palay and my father sent two cavans of rice.[b]

[a] This was before Malvar assumed command.

[b] A cavan is about 132 pounds.

In June of the same year I went to Manila to procure a new stock for my drug store in this city. This had hardly been well established to advantage when I received a message from the insurgents requesting a long list of medicines, signed, if I remember correctly, by Colonel Casala or by Major Cantos. This I concluded to be a bad beginning for my business. If the whole list had been filled it would have cost 50 or 60 pesos, but making the excuse that I did not have many of the articles which figured in the list I gave only antipyrine, quinine, iodoform, and other medicaments of common use, to the value of 20 to 24 pesos. When later they sent to me requesting saltpeter and sulphur for the manufacture of powder I considered it serious indeed, for these things were considered contraband of war. I could freely give medicaments, morally from a humanitarian standpoint, but in this I could not oblige them, giving the excuse that I had hardly one hundred grams of saltpeter. This drug is but little used in pharmacy, and on account of the state of war was prohibited from being sold in large quantities in Manila.

In the month of February, 1901, I was greatly surprised at being elected president of the Federal party. Though at another time I would covet this exceedingly, yet I could not incur the hate of the insurgents toward the Federals. At last I decided to accept the presidency, and to insure my personal safety on my farm, where there were no guards, I took the remedy of writing to Colonel Casala asking permission to accept this, and if not given, for him to come and capture me, so that I could be away from the party. Excessive congratulations were in his answer, which was in effect an order that I should continue as president of the Federal party.

Some time in the fall of 1901 I received a package of copies of letters of the revolutionary committee of Hongkong, signed by Galicano Apacible. In these letters General Malvar was much applauded. The capture of Aguinaldo was much lamented, and also the surrender of many generals at the same time, which tended much to reduce the patriotism of the Filipinos. Yet Malvar was above all this, and in him the committee congratulated themselves that they still had a native land if he did not surrender.

[*Extract from the declaration of Pedro Pastor, then municipal secretary, but now clerk of the court of first instance for the seventh judicial district.*]

In the time of Colonel Rillo, when the Americans entered the city—Tuesday, January 16, 1900, at 9 o'clock, a. m.—I was tax collector of this district, and the money in the local treasury of the city under my authority, collected from December 31, 1899, when I rendered my last account to the provincial treasurer, was about 150 pesos. This was taken from me by an American lieutenant who stopped me inside the town as I was proceeding on horseback to take this money to the insurgents. In my building in the barrio of Mahabangdahilig, Batangas,

there was deposited some money of the provincial treasury, which I think amounted to about 600 pesos. I took this money from the place two or three days after the entrance of the Americans and turned it over to the insurgent tax collector.

Beginning in the month of February and continuing to the end of April I accepted the accounts of all the municipal officers to the amount of 200 pesos and turned it all over to Colonel Rillo.

Beginning about January 14, 1900, I charged a tax of 1 peseta (20 cents Mexican) on every document, credentials of ownership, and transfers of stock, until the actual establishment of the municipality on May 22, and this fund was used to purchase articles for Colonel Rillo and Colonel Casala.

I maintained written and verbal correspondence under the assumed name of "Sinapaloc" with Rillo, who used the name "Loray," with Nicomedes Yrineo, who signed "Dimas-Upil," and with Casala, alias "Lasac," sending them papers, and also told them never to attack the city as they could not be victorious and to content themselves with a guerrilla warfare, existing on the American ammunition and rations, and to be careful and not let any misfortune overtake their persons, to hide well so as not to be captured, and to prolong the war for an indefinite period, because only by endurance could the nationalist cause hope to triumph.

To the above-mentioned chiefs I took contributions in money of which I do not know the exact amount, but which did not exceed 200 pesos, and 40 cavans of palay, for the months of February and March, 1900. Later to the company of Yrineo I sent 20 pesos in money and medicines to the value of 17 pesos.

Martin Cabrera (colonel and predecessor of Marasigan as chief of the occidental zone of Batangas) asked me for rice for his soldiers at Taal, but I did not send him any, replying that I had sent 300 pesos to the government of Malolos before the breaking out of hostilities. Ramon Atienza at Taal wrote me and asked for contributions on three different occasions before he went to take command in Mindoro. The first time I sent him 20 pesos, the second time 10 pesos, and the third 5 pesos, all in bank notes.

During the sugar season of this year I sent the insurgents two ollas of sugar from each of my sugar mills.[a]

On December 24, 1900, Manuel Scarella, captain, asked me for a pair of patent-leather shoes as a Christmas present. I did not answer, but I sent to the camp 10 pesos for the poor soldiers.

In January and February, 1901, I sent to Casala 7 pesos with a letter requesting that Bernardo Andal be exempted from service as a soldier, as he had but recently married. In the same months I also sent Casala 25

[a] An olla is about 100 pounds.

pesos, requesting the exemption from service of an agent of my uncle, which request was granted. Later I sent Soriano, captain, four large mats that he had requested, and also 200 pesos to Casala.

In June, 1901, I received notice from Casala that the third part of my salary as municipal secretary should be sent him, and I answered that on account of my money resources being almost exhausted in place of the third part of my pay I would give him 6 cavans of palay each month, and I suggested that he take it from my place in the barrio of San Augustin, Ibaan, and I give orders to my agent in the said barrio that he should always have 6 cavans of palay in readiness each month to be given when he should be shown the name "Lasac." Casala wrote me in October that on account of the difficulty in transportation he had not at that date gotten any palay, and he asked me to hold a proportionate amount in readiness for him in my place in the barrio of Mahabangdahilig, Batangas, and I accordingly gave orders to this effect in that barrio.

During all this time, from January, 1900, to November, 1901, I had frequent correspondence with the insurgents, both verbal and written. I had regular messengers in my house, and among other things I told the chiefs that regular battle should never be given the Americans, because they would always conquer and annihilate the insurgents. On two or three occasions I sent notice to the insurgents when an American expedition was to set out, to what place it was going, and for what purpose. At other times I gave data about the location of the Americans inside the city, for example, that there was one company in the convent, another in the house of Rameriz, another in the house of Genato, another in that of Felipe Borbon; and also their change in location in the city, and that they had their rations in the government building and their war munitions in the lower part of the convent.

At the risk of repetition let me again call the attention of the reader to the fact that the actions of these two men, the presidente and the secretary of the town, living in the town and supposed to be friendly to the Americans, are but examples of nearly every inhabitant of the Third Brigade at the time General Bell took command. The man who received the Americans with the greatest protestations of friendship was quite sure to be the worst spy in town. All that were met or seen were amigos of the Americans and had never done anything to help the insurgent cause. One of the stoutest to deny all accusations of correspondence with the insurgents was this very Pedro Pastor, who continued in his denials until confronted by Captain Boughton, the provost marshal, with undeniable proofs which were found in some

captured correspondence in spite of Pedro's excessive carefulness.

Men and squads of men without commission, without being part or portion of the regularly organized hostile army, without sharing continuously in the war, but with intermittent returns to their homes and avocations, and with frequent assumptions of the semblance of peaceful pursuits, divesting themselves of the character and appearance of soldiers, committed hostilities by fighting and making raids of various kinds, after which they concealed their arms and returned to their homes, posing as peaceful citizens, secretly and often openly living in the same towns with garrisons of our troops. They accepted local offices from the government and took the oath of allegiance solely for the purpose of improving their opportunities and facilities to deceive the Americans and to treacherously aid and assist the cause of the insurrection. In proof of these statements one has only to look at the convictions before military commissions of the crime of the violation of the oath of allegiance.

Should any one ask me why these men, in towns garrisoned by American troops, furnished this money and these supplies, I could answer in no better way than by quoting General Orders, No. 259, Headquarters Division of the Philippines, 1901, which fully explains the reason, and which has been hinted at above in Villeneuva's declaration.

GENERAL ORDERS, } HEADQUARTERS
No. 259. } DIVISION OF THE PHILIPPNES,
Manila, P. I., September 7, 1901.

Before a military commission which convened at Binan, Laguna, was arraigned and tried Euligio Alomia, alias Toyo, a native.

Charge 1.—Kidnapping.

Specification: In that he, Eulogio Alomia, alias Toyo, native, did, in the pueblo of Binan, Province of Laguna, Luzon, P. I., then as now occupied by United States troops, at a time then as now of insurrection, in company with other natives, unlawfully, by force, and with intent to do bodily harm, kidnap and carry away Mateo Carabo, native.

This in the pueblo of Binan, Laguna Province, on or about July 8, 1900.

Charge 2.—Murder.

Specification: In that he, Eulogio Alomia, alias Toyo, native, on or

about July 8, 1900, then as now a time of insurrection, at or near Binan, Province of Laguna, Luzon, P. I., a place then as now under the military government of the United States, did willfully, feloniously, and with malice aforethought, kill and murder one Mateo Carabo, native, by stabbing him, the said Mateo Carabo, inflicting thereby wounds whereof he, the said Mateo Carabo, then and there died."

Plea.—Not guilty.

Finding.—Guilty.

Sentence.—And the commission does therefore sentence him, Eulogio Alomia, alias Toyo, native, to confinement at hard labor, at such place as the reviewing authority may direct, for the period of thirty years.

In the foregoing case it appears that this accused, Eulogio Alomia, alias Toyo, at the pueblo of Binan, Province of Laguna, P. I., about July 8, 1900, kidnapped from his house one Mateo Carabo, and thereafter killed him with a dagger. It further appears that the accused was one of the official executioners appointed by and acting under the orders of Lieut.-Col. Eustacio Castelltor, and it does not appear that the accused had not ample opportunity to avoid obedience to this illegal order and seek protection from the American authorities.

As illustrative of the methods pursued by his superior officers, the following quotation is taken from a written confession of the accused, made in the presence of witnesses, prior to his trial and admitted by him on his trial to be true and correct: "I carried a letter of authorization * * * to act as a special agent, which means authority to commit murder. Each time a murder was ordered, a letter was sent to one of four men (above named) by one of the chiefs (naming them). Afterwards this letter was taken up and burned. If a man did not pay his contributions to the insurgent tax collector he was ordered to be killed." This confession is so in line with numberless well-established cases that its substantial truth may be accepted with little doubt.

The sentence approved by the department commander is confirmed and will be duly executed at the Presidio de Manila, to which the prisoner will be sent under proper guard.

By command of Major-General Chaffee:

W. P. Hall,
Assistant Adjutant-General.

As late as July 2, 1902, the writer forwarded and approved the death sentence passed upon three natives, soldiers of Gonzales's column, who went into the open market place at Tanauan, Batangas Province, and killed the native interpreter of the American troops in that place. There was no motive other than that he was an Americanista, and, though they did not claim so openly, they were ordered to kill this man, as did

the accused in the case above given. In fact, it has been quite a most delicate question for commissions and reviewing authorities to determine upon the guilt and the amount of punishment to be meted out to murderers that acted under orders from insurrecto officers.

Against such treachery as this the American army had been waging war unsuccessfully for over two years. And this failure was not due to any lack of activity or ability on the part of the American troops. But many times the number of troops that were employed would never have been able to track down the guerrilla bands, for besides the mountain topography, the insurrecto soldiers at night would have slipped out of the corner in which they found themselves and disappeared, and the following day there would be none but friendly natives when the troops returned to their towns. Such warfare as we had been waging in the Philippines was not successful. The Army, under the most trying circumstances, had fought a foe quite savage in its instincts, for the massacre at Balangiga was under control of Lucban, Malvar's general in Samar. In fact, the war in the Philippine Islands, due to a desire of the American people to carry on the theoretical dream of a humanitarian war, had become more or less of a failure, and this was taken by the insurgents as a sign of weakness.

Grown weary of a war that reflected little credit upon American arms, except for the wonderful examples of individual bravery and the remarkable state of discipline shown by the troops in not taking harsh measures, either by retaliation or otherwise, the unequaled Wheaton determined to wage war as it had been waged by Grant and Sherman, when after three years of fighting they decided to crush the rebellion in 1864. He chose as his lieutenant the youngest and most energetic brigadier in the islands, Gen. J. Franklin Bell, and ordered him to carry out drastic measures in Batangas and Laguna, the hotbeds of the insurrection.

It is unfortunate that the people of the United States have derived their ideas of a concentration system from the reconcentrado policy of General Weyler in Cuba, when a Cuban junta in Washington spread broadcast over our land the

awful pictures of starvation in the Cuban camps. And the people either could not or would not dissociate these pictures from the true state of affairs in Batangas, and papers in the States, supposed to be reputable, began printing pictures of Weyler when publishing articles on General Bell's campaign in Batangas.

The concentration was ordered by General Bell on December 8, 1901, by telegraphic circular No. 2, which is as follows:

[Telegram.]

Telegraphic Circular No. 2.

BATANGAS, *December 8, 1901*

To all Station Commanders:

In order to put an end to all enforced contributions now levied by insurgents upon the inhabitants of sparsely settled and outlying barrios and districts, by means of intimidation and assassination, commanding officers of all towns now existing in the provinces of Batangas and Laguna, including those at which no garrison is stationed at present, will immediately specify and establish plainly marked limits surrounding each town, bounding a zone within which it may be practicable with an average-sized garrison to exercise supervision over and furnish protection to inhabitants (who desire to be peaceful) against the depredations of armed insurgents. These limits may include barrios which exist sufficiently near the town to be given protection and supervision by the garrison, and should include some ground on which live stock could graze, but so situated that it can be patrolled and watched. All ungarrisoned towns will be garrisoned as soon as troops become available.

Commanding officers will also see that orders are at once given and distributed to all the inhabitants within the jurisdiction of towns over which they exercise supervision, informing them of the danger of remaining outside of these limits and that unless they move by December 25 from outlying barrios and districts, with all their moveable food supplies, including rice, palay, chickens, live stock, etc., to within the limits of the zone established at their own or nearest town, their property (found outside of said zone at said date) will become liable to confiscation or destruction. The people will be permitted to move houses from outlying districts should they desire to do so or to construct temporary shelter for themselves on any land vacant within the zones without compensation to the owner, and no owner will be permitted to deprive them of the privilege of doing so.

In the discretion of commanding officers, the price of necessities may also be regulated in the interest of those thus seeking protection.

As soon as peaceful conditions have been established in the brigade these persons will be encouraged to return to their homes and such assistance will be rendered them as may be found practicable.

J. F. BELL,
Brigadier-General, Commanding.

The order was carried out by commanding officers in the spirit in which it was given. People came into the towns, bringing all their provisions and household effects with them, and were sheltered in the houses of relatives and friends or else made shelter for themselves. After this order was issued parties were sent out, mostly natives guarded by small detachments, to gather the palay and food stuffs of the neighborhood, and whatever was found was brought into the towns, and after giving a certain portion to the gatherers, the rest was stored under guard for future issue to the poor. In the inaccessible parts of mountains the palay that could not be reached by caribou train was destroyed. Telegraphic circular No. 7 is given below to show the working of the system:

[Telegram.]

Telegraphic Circular No. 7.

BATANGAS, P. I., *December 15, 1901.*

To all Station Commanders:

Though section 17, General Orders 100, authorizes the starving of unarmed hostile belligerents, as well as armed ones, providing it leads to a speedier subjection of the enemy, it is considered neither justifiable nor desirable to permit any persons to starve who have come into towns under our control seeking protection. Although many of these persons can unquestionably be classed as enemies with perfect justice, it is too difficult to discriminate between the hostile and those who really desire peace to inaugurate or permit any policy of starvation under such circumstances. Every proper effort will be made at all times to deprive those in arms in the mountains of food supplies, but in order that those who have assembled in the towns may not be reduced to want it is absolutely essential to confiscate, transport to garrisoned towns, and save for future contingencies, whenever possible, every particle of food supplies which may be found concealed in the mountains for insurgents or abandoned at a distance from towns.

Therefore, instead of destroying animals and food products found by troops under such circumstances, commanding officers will make every possible effort to see that such animals and food are brought into the nearest town and kept under the control of the military authorities for

future use. In accomplishing this, all means of transportation may be seized and every able-bodied male impressed and marched under guard to transport such food products into towns.

Though it is recognized that it may be difficult at times to accomplish the above instructions, it is expected that every reasonable effort will be made to do so, even at the expense of time, care, and labor, and that no rice or food will be destroyed except where absolutely impracticable to get it into towns. It should not take more than a week to completely clear out all outlying districts of food products. Station commanders will begin at once to hunt for and bring in these supplies. Food abandoned may be given to those town people who will bring it in, if impossible to get it in for the government.

Storehouses in which to store these products will be taken possession of, or when none are available the presidente will be required to build one with labor and material of the town without compensation from the government. These products will be carefully preserved by the garrison for future use in accordance with a system to be announced hereafter. The rice of persons believed to be disloyal, beyond an amount necessary for themselves and dependents, may be confiscated and preserved for the same purpose.

No rice or food supplies thus seized will be fed to public animals, nor will any of it be consumed by troops except in case of emergency and necessity. None of this food will be issued gratis to well-to-do people who have means and property on which they can raise money to buy it, but when such people have no rice and are unable to purchase it elsewhere, these government stores may be sold in small quantities at a reasonable rate. The money thus accumulated will be used to purchase other rice in Manila to be transported by the government and resold at the same price or issued gratis to paupers.

The utmost care will be taken in registering paupers and the members of their families, in order that frauds may be prevented in the gratuitous issue of food.

In the discretion of subdistrict commanders, after consulting station commanders, a uniform scale may be established, regulating the prices that may be charged by merchants for ordinary and necessary food supplies. Subdistrict commanders may also transfer any surplus of government stores from one town to another that needs it worse.

It is the purpose of this order to place the burden of feeding the poor upon the wealthy classes whose disloyalty has brought on and maintained this war, and upon those who still remain disloyal, especially upon those who are actively sympathizing, contributing to, and otherwise assisting the insurrection. See provisions of sections 21, 37, 38, and 156, General Orders, No. 100.

J. F. Bell,
Brigadier-General, Commanding.

In the city of Batangas the provost-marshal established a poorhouse, called the "poor hospital," where the people that were brought in sick were kept, fed, and treated by an army medical officer until they were well. There was, however, little sickness in any of the camps of the brigade. This poorhouse in Batangas became a refuge for families whose heads still remained in the field, and it excited the admiration of all who cared to investigate the concentration system. It is to be noticed that General Malvar, in giving to the world the reasons for his surrender, did not nor could he truthfully give as one of his reasons compassion for the people inside the zones. They needed no compassion. They were fed, provided with shelter, poor funds arose in every town out of the sale of palay and rice, and the only people suffering were the insurgents in the field, that with almost mulish stubbornness remained out long after the end was a foreseen conclusion.

One advantageous feature of bringing the people into the towns was that they became acquainted with the Americans. Probably 60 per cent of the people of Batangas had never seen an American, and as they came in touch with us they found they were not maltreated, as they had been told by the insurgents they would be; they found they were fed and housed; they found their personal rights were not interfered with, and their individual liberty only restricted as was necessary under war measures.

When Malvar surrendered on April 16, 1902, the zones were broken, prison doors flew open to all but criminals, and General Bell and his officers set to work to help repair the homes, while camotes, seed corn, and seed palay were furnished from the poor fund for planting. Families returned to their homes, fields were put under cultivation, and peaceful vocations were once more resumed. Rice was furnished at a nominal cost, and as it was cheaper than the people had known it to be for years, it was readily sold. Money appeared, some of it bearing evidence of having been buried in the earth, and the Filipinos recognized that the United States Government was not as bad as they had feared. Rice is still being sold to the people by the government, they paying for it in money, or lime, or by working on the roads.

No suffering in Batangas that I have seen has been due to a scarcity of food, and the other day it was found impossible to hire boys to work on the plaza in front of the church at pulling weeds. Boys were playing in the streets, but they did not want to work. Such is a true picture of bleeding Batangas.

And, now, what did the concentration system accomplish?

In a little less than four months it put an end to a guerrilla warfare that otherwise would have continued for years, with ladrones terrorizing the people; it compelled the surrender of Malvar, who would not otherwise have surrendered; it made possible a civil government which, under native governors, took control in both Laguna and Batangas on the 1st and 4th of July; it brought peace to a ladrone-ridden race, with less suffering than could have been expected; it made the Filipinos acquainted with the Americans, and made them realize that the Army of the United States is here simply to bring peace and development to them and open for them a road to a civilization and a pursuit of happiness such as the brown people have never dreamed. They have felt the weight of the mailed fist, it is true, but it was not harsh, and it was laid upon them by as gentle a hand and guided by as humane a heart as American civilization has ever produced.

GENERAL CHAFFEE ENTERING PEKIN.

THE SERVICES OF GRADUATES IN CHINA, 1900-1901.

By Major CHARLES R. NOYES,

Ninth Infantry, U. S. Army.—United States Military Academy, 1879.

CAPTAIN (ADJUTANT) LIGHT ARTILLERY FULL-DRESS, 1901.

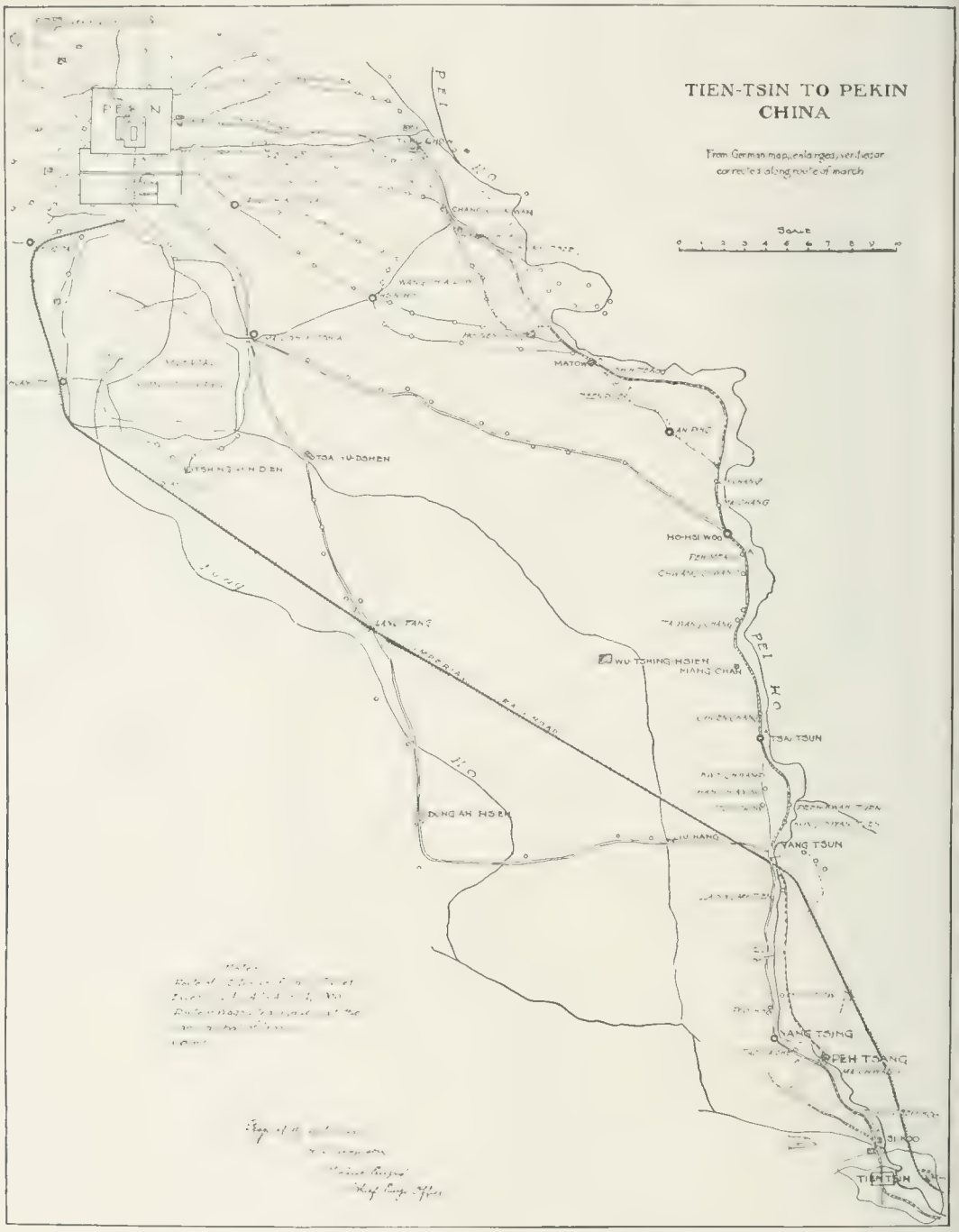
THE recrudescence of antagonism to foreigners in China in the year 1900 became known as the "Boxer" uprising. The prominence and leadership of a society of fanatics which for many years had been in existence and to which the name "Boxer" was given in translation of the Chinese appellation, perhaps not with entire correctness, brought about this popular designation. The society is said to have received the encouragement of the Buddhist monks who possessed power and control over large masses of the populace, and who feared that the teachings and commercial enterprise of foreigners would subvert their power. Eventually the Empress Dowager, who, possibly in her ignorance, hoped to see the absolute exclusiveness of the Empire once more restored, secretly gave her influence and assistance to the agitators. The sufferings of the Chinese people at large from famine and from the oppressions of their rulers placed the masses in a state of mind favorable to any movement which would alleviate their condition, and they were, on account of their unhappy state, the more easily persuaded that the extinction of "foreign devils" was a necessary step to secure the favor of their gods and obtain relief. The teachings of the Boxers were fanatical. They believed that a course of physical training persistently practiced would render them invulnerable to foreign bullets. This belief was accepted by even intelligent and educated Chinamen, and the specious explanation that they who suffered death had not sufficiently practiced the art of physical development was accepted with unquestioning faith.

Although all foreigners in China knew that they were a hated lot, and that they pursued at some personal risk their various occupations as missionaries, merchants, railroad builders, and even as representatives of their several governments, or as employees of a Chinese administrative bureau—the customs service—they were not so apprehensive of danger in the early part of the year 1900 as to withdraw from their occupations, even though located in remote districts of the Empire.

The animosity of the Boxers was at first directed chiefly against the natives of their own land who had become Christians under the teachings and guidance of the missionaries. One English missionary was, however, murdered in December, 1899. For this crime the representatives of the foreign Governments at Pekin obtained punishment of the murderers, and at their solicitation the Empress Dowager, who held the reins of government, issued decrees against the secret societies, which were the reported leaders of all the outrages against the native Christians. These decrees were adroitly worded, and were pronounced by some students of the situation to indicate sympathy with the movement and a purpose to secretly aid the societies rather than a determination to suppress them.

The measures taken were, at all events, so ineffectual that after repeated protests by the foreign ministers the latter deemed it expedient to ask their Governments to send war ships to Chinese waters, the requests being made simultaneously by the English, American, French, German, and Italian ministers, in March, 1900.

The indignities imposed upon native Christians increased during the spring months, and the Boxer societies attained greater power and influence among the people, becoming bolder in their aggressions, and the Chinese troops which the Government had sent to disturbed districts were either unable or unwilling to restrain them. Missionaries in remote parts of the Empire now became alarmed. Some fled to Pekin, Tientsin, and the coast cities, but many, unwilling to abandon their Christian converts, clung to their posts, hoping the foreign ministers would still be able to compel effective measures for their protection.



CHINA RELIEF EXPEDITION—TIENTSIN TO PEKIN, CHINA.

The gravity of the situation was not fully appreciated by all the ministers. The British and American were loth to take steps which would place their Governments in a criticising, or, possibly, belligerent attitude toward China. As late as May 21 the British minister in a note to his Government, expressed the opinion that he did not share the gloomy anticipations of the French Fathers, that he was convinced a few days' heavy rainfall to terminate the long drought would do more to restore tranquility than any measures which either the Chinese Government or foreign governments could take. But the populace was by the end of May, 1900, completely inflamed, and the events which transpired then and immediately thereafter aroused the civilized world.

About May 28 the ministers called upon the naval commanders at Ta-ku for guards, and the Chinese foreign office, the Tsung Li Yamen, was notified that the guards would arrive immediately. May 28, Captains John T. Myers and Newton H. Hall, U. S. Marine Corps, and a portion of the marine guards of the U. S. S. *Oregon* and *Newark*, consisting of 54 men, were sent ashore at Ta-ku, arriving at the railroad station, Tong-ku, on the left bank of the Pei-ho River, opposite Ta-ku, in the afternoon. Request was made upon the railroad officials for transportation to Tien-Tsin, 28 miles inland, but was refused until the authority of the viceroy could be obtained. Delay was impossible. Accordingly, the command proceeded at once by the river, being towed on a lighter, and arrived at Tien-Tsin at night (May 29). They were the first troops to appear in the city, and were received with enthusiasm by the foreign inhabitants.

On May 30 and 31, marines from the ships of Russia, France, Great Britain, Italy, and Japan assembled at Tien-Tsin until the force numbered 350.

On May 31, the necessary authority having been obtained, the marine force of about 350 men left Tien-Tsin at 4.30 p. m. by rail for Pekin, arriving at the railroad terminus outside the city about 11 p. m., and marched at once to the legations unresisted, but observed by silent throngs of Chinamen. Captain Bowman H. McCalla, of the *Newark*, accompanied the command, and returned to Tong-ku by rail June 2.

On June 3, the German and American ships at Ta-ku sent guards to Pekin.

On June 4, the last train went over the railroad from Pekin to Tien-Tsin. Sections of the railroad were destroyed, and during the next few days the rails were removed from the part of the line from Pekin southward about 30 miles.

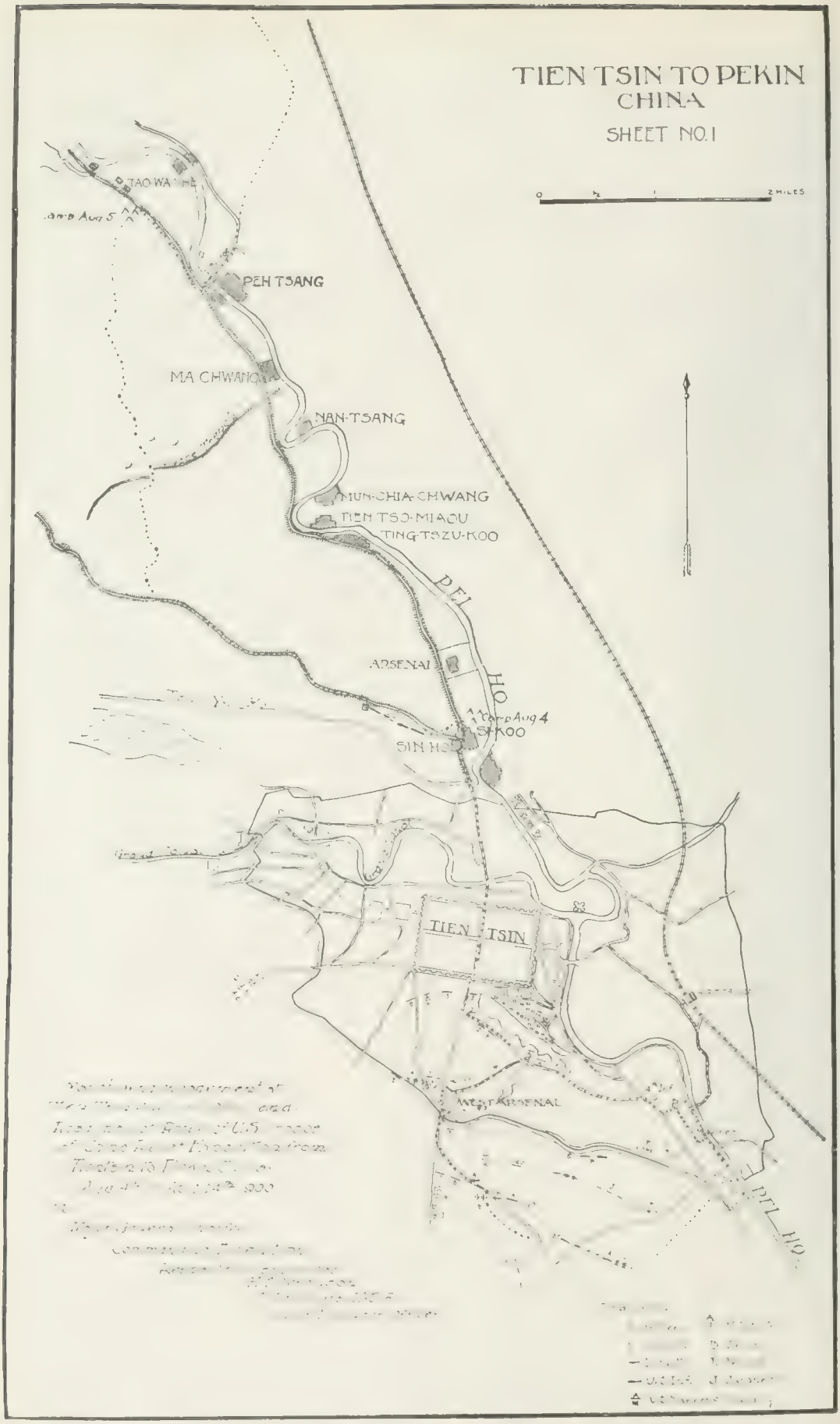
On June 5, alarm increased at Tien Tsin, and reports were current that the Boxers would attack the foreign concessions.

On June 9, foreigners at Tien Tsin expected immediate attack, and at Pekin Boxers swarmed through the city, fraternizing with the Chinese soldiers.

Additional guards were urgently called for by the ministers. The guards were expected to travel as far as possible by rail and march the remaining distance. The Seymour relief expedition, so called from the name of its commander, Vice-Admiral Sir Edward Seymour, K. C. B., was organized, and the first train load of marines and seamen left the coast June 10. On June 11, three more train loads made the total force 2,056 officers and men. Captain McCalla commanded the United States contingent of 112 men. The U. S. gunboat *Monocacy*, Captain Wise, lay in the Pei-ho River, near Tong-ku, and served as a base point for the Americans in this expedition. Captain Wise took possession of the railroad terminal a few days later when it was abandoned by the Chinese officials, and employed his officers and men in running trains as far toward Tien-Tsin as the line remained unbroken.

At the departure of the Seymour command from Tien-Tsin a guard of less than 600 men was left, the inhabitants of the foreign concessions arming themselves as far as practicable and cooperating with the troops. The native walled city had fallen into full possession of the Boxers, who made demonstrations in force against the concessions after the departure of the Seymour command, and they soon cut off communication with it.

On June 12, the relief expedition, after repairing breaks in the railroad, reached Lang-fang, about 40 miles from Tien-Tsin, and there its advance ceased. A small detachment pushed on a few miles, but the railroad had been destroyed



CHINA RELIEF EXPEDITION—TIENTSIN TO PEKIN, CHINA. SHEET NO. 1.

beyond; hordes of Boxers surrounded the detachment, and it was compelled to withdraw to the main body, which itself was now attacked.

On June 17, the Seymour expedition began a retrograde movement to Tien-Tsin, the command having frequent encounters with large bodies of surrounding Boxers and troops. On this day, also, the Ta-ku forts at the mouth of the Pei-ho River were captured from the Chinese by the allies as a measure of safety for the protection of the Seymour expedition and Tien-Tsin. News of this at Pekin caused the Chinese Government to assume, officially, a belligerent attitude, and the members of the legation were notified to leave the city. They considered the journey to the seacoast impracticable and unsafe in view of the disturbed condition of the intervening country, and measures were adopted to endure a siege while awaiting relief from the coast.

The inability of the Chinese Government to preserve order and maintain the safety of the ministers had already been demonstrated. The chancellor of the Japanese legation at Pekin had been murdered on June 12. Missions had been burned and native Christians murdered and tortured within the limits of the city. Many others had been gathered within the legation grounds. There was no longer any delay in preparing for the siege, and the locality occupied by the legations was made as impregnable as possible. The streets leading to the legations were barricaded and the walls and buildings prepared for defense. On June 20 the German minister, while attempting to go to the office of the Tsung Li Yamen, was murdered, and his interpreter badly wounded.

On June 18 the *Nashville* arrived at Ta-ku, having on board a battalion of marines from Cavite, under the command of Major Littleton W. T. Waller, U. S. Marine Corps. This force was landed the following day, and joined a body of Russians which had arrived from Port Arthur in an effort to reach Tien-Tsin, now cut off from the coast, sections of the railroad having been destroyed. This command was repulsed in a fight, June 21, a few miles from Tien-Tsin and driven back 4 or 5 miles, Major Waller's command having 4 killed and 7 wounded. Although other losses among the Americans

had already occurred with the Seymour expedition, no information of them had reached the seacoast, and Major Waller's losses were the first reported in the United States, causing a profound sensation.

On June 21, Russian troops, including a field battery, arrived from Port Arthur, and a battalion of British (Royal Welsh Fusileers) from Wei-hai-wei.

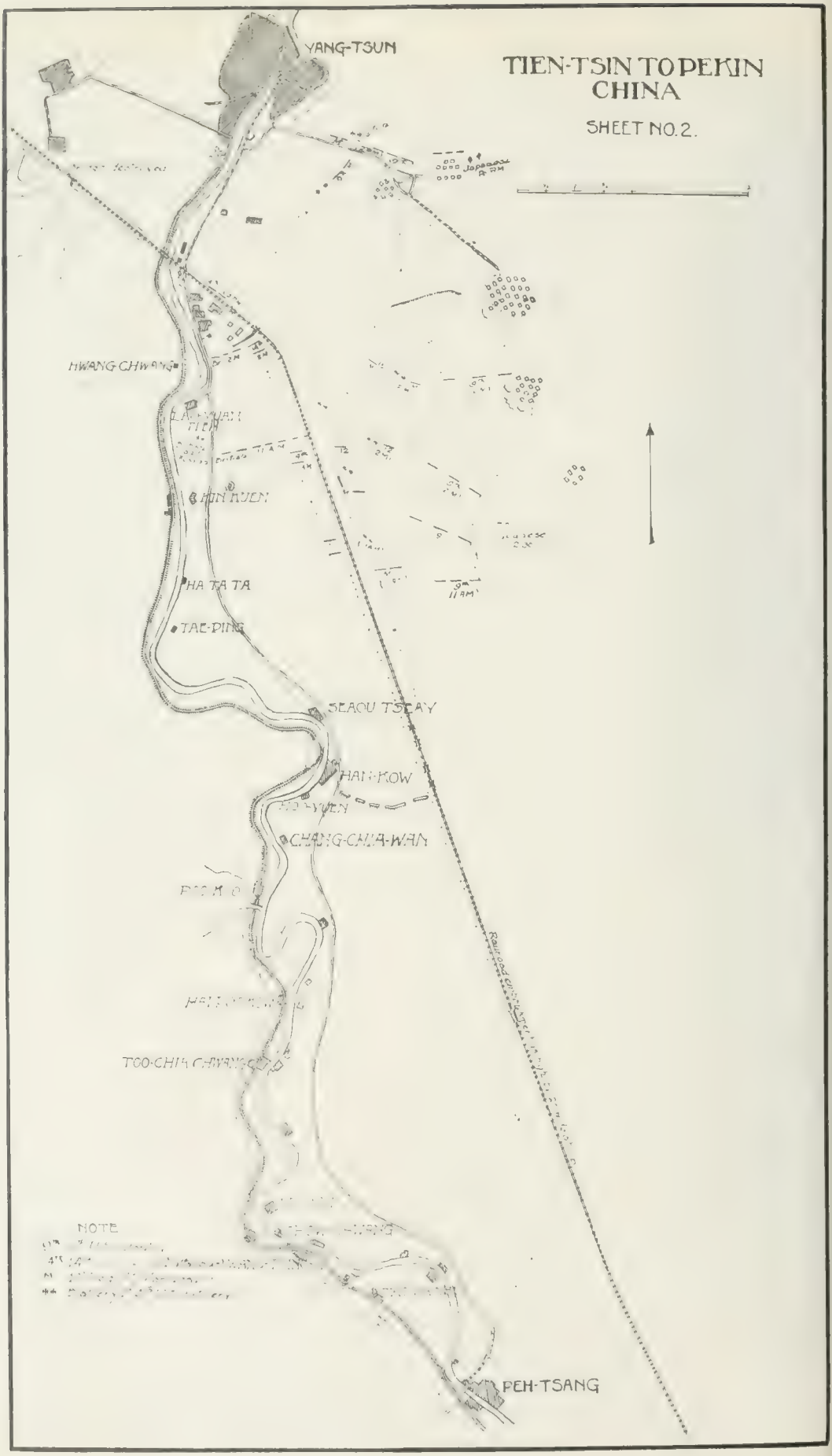
On June 23, another advance on Tien-Tsin was essayed, the force now numbering 2,500 men, of whom 1,500 were Russians, and after severe fighting the city was reached.

On June 25, the Seymour expedition, which, driven back, had fortified itself in the Hsi-ku arsenal a few miles north of Tien-Tsin, was relieved by the force which had fought its way up from Tong-ku, and was brought back to the city the following day, the arsenal with immense quantities of ordnance stores being destroyed. The total losses of the Seymour command were 62 killed, 228 wounded.

Tien-Tsin (the foreign concessions) now became the objective of Boxer operations, the Chinese forces consisting of Boxers, salt commissioner's armed men, and regular troops, holding the "walled city" and the contiguous forts. The foreign concessions were bombarded from the forts almost daily, and numerous attacks were made on outlying posts, the railroad station being fought for most determinably on several occasions.

Communication by means of the Pei-ho River was kept open between Tien-Tsin and the ships at Ta-ku, and almost all the women and children and missionaries were removed from the city.

Thus far the Navy and the Marine Corps had borne the share of the burden which fell to the United States in the efforts of the nations to sustain their rights and relieve their beleaguered citizens in China. The failure of the Chinese Government to protect the ministers and legations at Pekin had stirred the whole civilized world against her, and as days passed bringing more positive information of the dangers which beset their fellow countrymen, and of the state of siege in which they were placed, China was regarded as dishonored,



CHINA RELIEF EXPEDITION—TIENTSIN TO PEKIN, CHINA. SHEET NO. 2.

and the eagerness to overthrow her and hasten to the support of the endangered legations became intense.

The Army of the United States was called upon for action in June. On the 14th of that month, soon after the news of the landing of the Seymour expedition reached Washington, the Adjutant-General cabled to Major-General MacArthur, who commanded the United States forces in the Philippines, inquiring how soon he could send a regular regiment to Pekin, if required. To which General MacArthur replied that, although the loss of a regiment at that time would be a serious matter, he could, if critical emergency arose in China, send a regiment on two days' notice. An order was cabled June 16 upon receipt of General MacArthur's reply. The Ninth Infantry, which had been serving in the Province of Tarlac, Luzon, 70 miles north of Manila, ferreting out and running down such insurgent forces as remained intact in that district, had at this time just secured the surrender of the Filipino general who commanded there, with the chief part of his command. The regiment had its headquarters and most of its companies on the line of the Manila and Dagupan Railroad, and was regarded as capable of being quickly concentrated in Manila. The colonel, Emerson H. Liscum, was an officer of long service, favorably known for his valor, energy, and good judgment, and although the hard service of the regiment had depleted its strength and endurance somewhat, it seemed most available for the new field of action, and was at once selected by General MacArthur.

Instructions were telegraphed to Colonel Liscum on June 17 to concentrate his regiment in Manila as rapidly as possible, but a severe typhoon which was in progress delayed the transmission of the message, and no information of the proposed movement reached Colonel Liscum until the afternoon of June 18. The storm was the worst of the season and did great damage to shipping in Manila, to the railroad and roads, besides flooding flat country everywhere and converting streams and rivers, which were ordinarily fordable, into deep and impassable torrents. It was impossible to approach the army transports in Manila Harbor, which had been

designated to carry the command to China, to unload them, or prepare them for their trip. Seventy miles north, in the Province of Tarlac, the companies of the Ninth Infantry, which were located at a distance from the railroad, were cut off by the high water. Strenuous efforts were made, however, by officers and men to overcome all difficulties, as everyone was imbued with the eager interest and excitement which the prospect of active service in a new field developed. Two companies of the regiment were placed in Manila June 19, twenty-six hours after receiving the order. These were companies on the railroad which could move at once. The transfer of Ninth Infantry companies away from their stations involved movement of detachments of other regiments, the Twelfth on the north and the Forty-first U. S. Volunteers on the south, to occupy their places, as it was contrary to the policy in the Philippines to abandon any place which had once been occupied.

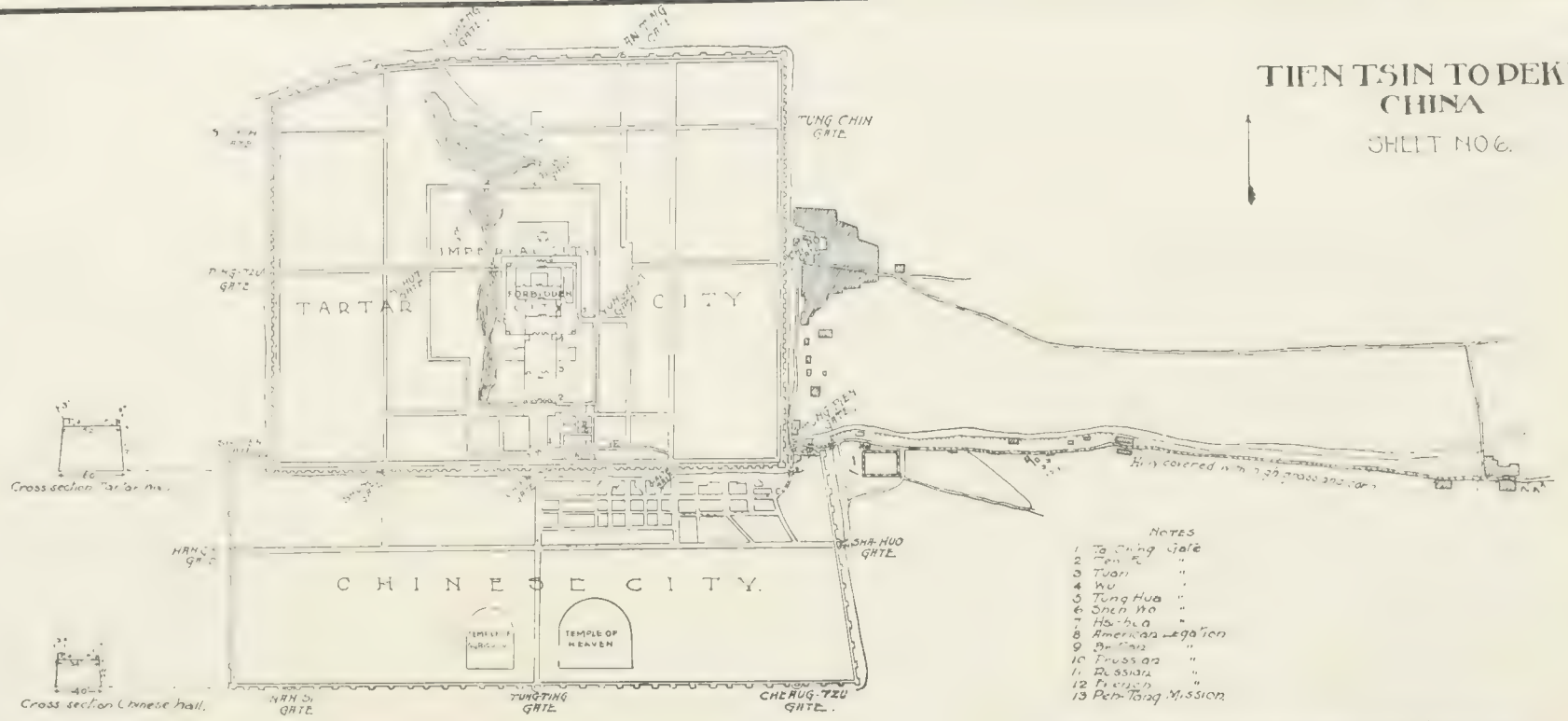
On June 20 the band and three companies proceeded to Manila; on the 21st five companies from outlying stations reached the railroad and proceeded to the city; and on the 22d Colonel Liscum, with his headquarters and one company, moved to the city, leaving but one company (F) and detachments at the outlying posts to be relieved. The last detachment reached Manila on June 25. In the meantime, the storm having abated, the two transports, *Logan* and *Port Albert*, had been coaled and loaded with stores. The troops were, by direction of General MacArthur, re-equipped throughout in order to present a good appearance when placed in comparison with the troops of other nations. The uniform adopted was campaign hat, blue shirt, khaki trousers, and leggings, with blanket rolls in new shelter tents. Khaki blouses were carried in the rolls, and the ordnance equipment was new throughout.

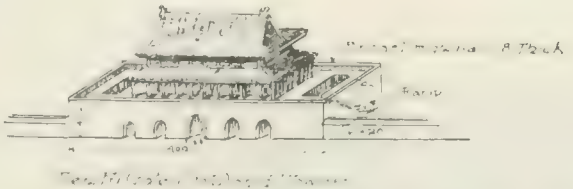
Staff detachments were added to the command as follows: 1 officer and 20 enlisted men of Engineers; 1 officer and 10 enlisted men, Signal Corps; 4 officers, Medical Corps, and 20 Hospital Corps men.

The troops were transferred to the *Logan* on June 26. The *Port Albert* was loaded with 50 horses of a regimental

TIEN TSIN TO PEKIN CHINA

SHEET NO 6.





mounted detachment, mules, wagons, ambulances, etc., on the same date.

The strength of the Ninth Infantry was 32 officers and 1,230 enlisted men.

The graduates of the U. S. Military Academy in the command were:

With the Ninth Infantry: Capt. Charles R. Noyes ('79), Capt. Frank DeW. Ramsey ('85), Capt. Edwin V. Bookmiller ('89), First Lieut. Francis H. Schoeffel ('91), First Lieut. Joseph Frazier ('91), First Lieut. Louis B. Lawton ('93), First Lieut. Thomas W. Connell ('94), First Lieut. Harold Hammond ('98), First Lieut. Ira C. Welborn ('98), Second Lieut. Fred R. Brown ('99).

With the detachment of Engineers: First Lieut. Harley B. Ferguson ('97).

Colonel Liscum having received final instructions from General MacArthur, and sailing orders having been issued, the anchor was weighed at 8 a. m., June 27, 1900. The *Port Albert* sailed a day or two later. Nagasaki, Japan, was reached at 6.30 a. m., July 2, and the operation of coaling and taking in a supply of fresh water was proceeded with, this port being the usual one at which such supplies were obtained by United States transports on their voyage from Manila to the United States. The location of the port is such that it became, during the troubles in China, a convenient point of call for war ships and transports of the United States, as well as other nations, and was used under the authority of the Japanese Government as a subbase, in so far as to permit trans-shipping of troops and supplies, disposal of sick and wounded, and coaling of war ships and transports.

The international character of the service upon which the command was entering was evidenced by the presence in the port of war ships of Russia, England, France, and the United States, as well as Japan, by military officers and men of these nations on the streets in uniform, and by the common interest felt in events, information thereof being communicated from one consulate to another as soon as received. The American consul, Mr. Harris, gave Colonel Liscum information of the movements of United States war ships, and conveyed reports

of what was transpiring at Tien-Tsin and vicinity. The news concerning Pekin was most disheartening. For days communication had been cut off, and there were persistent rumors of the annihilation of the ministers and all foreigners in the city. A cablegram from Admiral Kempff, who was the senior American naval officer at Ta-ku, was received on the afternoon of July 3 speaking of the situation as desperate, and Colonel Liscum decided to sail at once. He ascertained from the captain of the ship that sufficient coal and water would be on board by midnight, and orders were given to sail immediately thereafter. About sunset of that day the U. S. S. *Brooklyn* arrived, en route from Cavite to Ta-ku, having on board Rear-Admiral George C. Remey, and a battalion of marines, 18 officers and 300 enlisted men under Colonel Robert L. Meade, U. S. Marine Corps.

The *Logan* experienced smooth seas en route to China, entered the Gulf of Pe-chi-li near Port Arthur, and arrived at the anchorage opposite Ta-ku at 4 p. m. July 6. War ships of all nations were there, also supply ships, and Japanese, Russian, and British transports, about 40 ships in all, riding at anchor 10 miles from shore. The distant land was scarcely visible, being very low and flat, and the intervening bar prevented ships of deep draft approaching nearer. At low tide there were 2 feet of water over the bar, which was 2 or 3 miles wide, and at high tide about 10 feet of water, sufficient to permit small Japanese transports and coasting vessels from Shanghai and Cheefoo to cross and enter the mouth of the Pei-ho River. Formerly it was customary for such vessels after entering the river to wend their way up its tortuous course about 45 miles to Tien-Tsin, but since the construction of the railroad in 1897 merchandise was usually unloaded at Tong-ku, 4 miles up the river on the left bank, to be transported thence to Tien-Tsin and Pekin by rail.

The appearance of the great white transport *Logan* among the war ships, loaded with United States soldiers, was doubtless an event quite unexpected by the foreign naval officers and gave an impression of the readiness of the United States to participate in affairs in the Far East. The command was

very much larger than any other that had arrived, except from Japan, and the Russian troops from Port Arthur.

Colonel Liscum proceeded at once in a launch to the U. S. S. *Newark* and conferred with Admiral Kempff. The next day he went ashore with his adjutant and quartermaster, consulted Captain Wise of the *Monocacy*, inspected the line of railroad as far as it remained intact, and arranged to have lighters sent to the *Logan*. They arrived on the following day, July 8, and were at once loaded with stores to their full capacity. One of them was a large, well-built lighter, with an iron deck, and the other a Chinese junk; both were under the control of the British and were provided through the courtesy of the British naval officers upon request of Captain Wise. Early in the morning, July 9, headquarters, the band, First Battalion, and Company E of the Second Battalion, were placed on the lighter and the three remaining companies of the Second Battalion on the junk. This was the full limit of their capacity. At the same time the 300 marines from the *Brooklyn*, which had arrived the day before, were placed in small boats of that ship, towed by launches to the *Logan*, and attached in a long line astern of the junk. In that manner, towed by two strong tugs which had been secured by Captain Wise, the flotilla pulled away from the *Logan*, cheered by the officers and men of the Third Battalion and by many refugees who had already been collected from the United States war ships and given accommodations on the *Logan*. Foreign ships in the immediate vicinity paid their respects as the flotilla passed, bands playing. It was an inspiring moment for all participants, and officers and men looked forward eagerly to landing on Chinese soil and taking part in the exciting events which were taking place not far away. The booming of cannon at Tien-Tsin, where the bombardment of the foreign concessions was in progress, had been heard the evening before, and it was evident to all that something more was in store for them than a summer day's march to Pekin.

Arriving at Tong-ku about 5 p. m., the command was marched ashore and placed in shelter-tent bivouac for the night. Detachments of Russian and Japanese troops were

found in the vicinity. They were engaged in establishing a base, and all nations having naval forces ashore had set their flags over warehouses, railroad shops, and portions of the dock, to give a semblance of proprietorship and secure accommodations for handling troops and supplies when they arrived. Captain Wise had secured certain railroad buildings and river frontage, which afterwards served as the American base. Colonel Liscum did not, however, consider it advisable to leave any part of his command there, and at daybreak, July 10, the troops were reembarked, the journey to be made by the tortuous Pei-ho River to Tien-Tsin. The entire day and part of the night were occupied in the journey, the larger lighter arriving at the bund about 10 p. m. The tug towing the junk was disabled late in the afternoon and the journey was not completed by that portion of the command until the following afternoon. Major Waller, of the Marines, welcomed Colonel Liscum upon his arrival, and the five companies were conducted to the building in which the Marine battalion was quartered.

A combined attack by the allies on the Chinese position had been planned for early morning of the 11th, but delay in the completion of pontoon bridges by the Russians caused a postponement. From 3 o'clock a. m. until 6, however, the Chinese bombarded the foreign concessions and made a determined infantry attack on the exposed position at the railroad station, which had been tenaciously held by the allied detachments against great odds, its tactical position in the line giving it great importance.

Upon arrival of the Ninth Infantry at Tien-Tsin Captain John S. Mallory, Second Infantry ('79) (at that time lieutenant-colonel Forty-first Infantry, U. S. Volunteers), was found in the city, having arrived two or three days before on a roving commission issued to him at headquarters, Division of the Philippines, directing him to visit Hongkong and other Chinese cities.

He should be credited with being the first army officer and graduate to come under fire in the China campaign. He eventually attached himself to Major-General Chaffee's headquarters and participated in the march to Pekin.

There was cessation of the attacks on the foreign concessions from the morning of July 11, and the preparations of the allies for a general attack on the walled city, its suburbs, and the Chinese forts went on uninterruptedly. It was essential to silence the heavy guns which the Chinese had used so successfully for several weeks. The French concession, which was nearest to the Chinese city, had been partially destroyed by the enemy's shells and resulting conflagrations, and many buildings in more remote sections of the concessions had been badly damaged. Not many lives had been lost, but the demoralizing effect of the bombardment could not be longer endured. On the afternoon of July 12 the Russian general announced that he was ready. The plan of battle included a Russian and German attack on the east side of the walled city and an attack on the south side, simultaneously, by the other allies, the Japanese to take the lead and the other nations to be in support. The troops were to be in position at daybreak, Friday, July 13, 1900. The force under the Russian general comprised 2,300 Russian soldiers and 300 German sailors and marines. The Japanese force, commanded by Major-General Fukushina, was 1,600 strong. The British and Americans acted under the orders of Brigadier-General A. R. F. Dorward, a colonel of Engineers from Wei hai wei, having the local rank of brigadier-general, and the French cooperated with his command. The Austrians were represented by a small detachment from a ship at Taku. The American force comprised 330 marines under Colonel Meade, 15 officers and 423 enlisted men of the Ninth Infantry under Colonel Liscum at one part of the battle, and 2 officers and 100 enlisted men at another part. One company of the Ninth Infantry remained as guard in the building in which the regiment had secured quarters, and the Third Battalion did not arrive at Tientsin in time to join Colonel Liscum's command on the field during the morning, but reached there while the battle was in progress and was held in reserve.

The Russian attack was so far removed from that on the south side as to constitute an entirely separate battle. Theirs was a hotly fought engagement, continuing throughout the

day, and ending without the desired penetration into the walled city. The killed and wounded numbered 140.

On the south side the attack began at daylight, the Japanese gaining positions near the west arsenal on a mud wall which surrounded the city at about 1,500 yards from it. The intervening ground between the mud wall and the Chinese city was level and unoccupied, but filled with ditches, pools of water, and mounds over Chinese graves.

The Japanese opened fire at the interior wall at daybreak, while guns obtained from the British ships and from the captured Taku forts poured in shot and shell from positions on and near the same mud wall close by the foreign concessions. British artillery (Hongkong companies, Sikhs) found places for their mountain guns on the mud wall near the west arsenal, and the United States marines, who had three fieldpieces, rushed through the gate and, taking position among small buildings adjacent to the arsenal, kept up fire until their ammunition was exhausted, when the guns were withdrawn. The infantry companies of the marine battalion were placed with a battalion of Welsh Fusileers (from Wei-hai-wei) on the left of the Japanese early in the action, and when the latter scaled the mud wall and began advancing across the open waste in their front, the Marines and Fusileers supported them on the left. While the marines were thus engaged, British blue jackets and marines and the Ninth U. S. Infantry were held in the open fields outside of and about 1,000 yards distant from the mud wall, deployed facing it, and ready to advance. In this position the rifle fire of the Chinese passing over the mud wall unfortunately caused a number of casualties to which no reply could be made.

There were 9 casualties in the Ninth Infantry at this time, including 1 man killed and 1 officer, Captain Noyes, slightly wounded in the arm. The latter was able to rejoin the regiment after receiving the attention of a member of the British hospital corps, who happened to be close at hand. Colonel Liscum's orderly was severely wounded at this time.

General Dorward, learning of the casualties among the troops in the open field, ordered the lines forward to the mud wall, where they were perfectly protected. There they

remained for an hour or more, until the time arrived for the assault. The moment for the assault came when the marines had exhausted their artillery ammunition and withdrew their fieldpieces through the gateway to the exterior side of the wall. A Japanese infantry column, waiting closed in mass near the gate, was sent in first, and the Ninth Infantry followed. It appears from General Dorward's report that it was the original intention to place the Ninth Infantry on the extreme left of the Japanese, who had scaled the mud wall far to the left, but a British staff officer showed the way to a path over a depression in the wall about 100 yards to the left of the gate, and the regiment upon passing over found itself among the ruins of the small buildings, where the marines had served their guns, and where, now, the small Japanese column which had passed through the gate was for a moment protecting itself from the rain of bullets.

When the Japanese advanced the regiment followed and found shelter for its extended line on the edge of a moat surrounding the arsenal. A body of French infantry were located in the same place, and the right of the Ninth Infantry line was pushed so far to the right that the moat no longer protected it. That wing was therefore swung forward to an elevated road which crossed the open ground obliquely to the right in the direction of the concessions. But immediately a withering fire was received from the Chinese houses lying between the walled native city and the concessions, and Colonel Liscum decided to advance toward this new and unexpected onslaught. The change of front under fire could not be executed with tactical exactness, and the advance was begun at once by rushes of detachments from cover to cover, led by the officers. Losses were heavy. Captain Bookmiller fell soon after the advance began, severely wounded. Colonel Liscum marched gallantly along the elevated road, calling out to his men and motioning them forward whenever the Chinese fire slackened. Numbers of men fell in the terrible rush. Many tumbled into the ditches and were unable or unwilling to advance farther. The bravest pushed on and reached a position within 75 yards of the enemy's loopholed houses, where an impassable pond stopped their progress.

At the moment of making the last rushes the enemy's fire had almost ceased. An evidence of this was the fact that wounded men who were able to walk withdrew a distance of 200 yards, seeking shelter, without being fired upon. But immediately thereafter the fire redoubled and no movement could be made to circumvent the obstacle. In this advanced position the color bearer fell. Colonel Liscum seized the colors and was in turn shot down, receiving a mortal wound from which he died in a few minutes. Command was assumed by Major Jesse M. Lee, who was next in rank on the spot. About 9 o'clock, the ammunition being nearly exhausted, he decided to send word of the situation to General Dorward, and the message was successfully carried by Lieutenant Lawton, his battalion adjutant, accompanied by a musician named Hoyle. Lawton was severely wounded, however, while returning with reenforcements. He was mentioned by name in General Dorward's report and received a medal of honor for his gallant behavior. Major Regan, who commanded the second battalion, received two severe wounds, and Captain Noyes was disabled by a second wound. The casualties among the enlisted men were 15 killed, 67 wounded. The graduates present in this desperate rush not mentioned among the wounded were Lieutenant Frazier, who distinguished himself leading his company and assisting Colonel Liscum under fire, after he had been stricken down, for which he was recommended for a medal of honor, and Lieutenant Hammond, who was recommended for a brevet advancement for meritorious conduct.

Company A, increased to 100 men by detachments from other companies, had been located during this fighting as a guard at a pontoon bridge within the concessions, and in support of the post at the railroad station. The fighting at the railroad station being severe, reenforcements were called for, and 50 men were sent under Lieut. Fred R. Brown. The enemy's shells were fired at the buildings all day, the men taking shelter during the bombardment in ash pits in the engine house, rushing out to the intrenchments to repel infantry attacks when necessary. One shell exploded in the

building, killing two and wounding five of the Ninth Infantry, besides causing casualties among the United States marines and French and English soldiers who formed part of the post. Lieutenant Brown, in command of this detachment, did excellent service.

The result of the fighting on July 13 was no certain advantage for the allies. The terrific artillery fire to which the walls of the city had been subjected had made no breach, and the gates were still closed. The losses had been heavy on both sides of the city. The Ninth Infantry on the right of the Japanese and the marines on the left had protected the flanks, but were incapable of advancing from their exposed positions, and were withdrawn after nightfall.

The Japanese had, however, secured a position close up to the walls, protecting themselves among the mud buildings there, and hanging on tenaciously to what they had gained. During the night they completed arrangements to blow in the gates, a deed which was accomplished with great gallantry on their part at daylight on the 14th of July, resulting in occupation of the walls and rapid overthrow of all resistance. The Chinese, although numerous and sufficiently armed, lacked the organization and discipline necessary to sustain a long-continued attack. The havoc produced by the allies' shells within the densely populated city was awful to contemplate. Fires were found in progress at many places, the dead were lying about in great numbers. The regular Chinese forces withdrew from the city during the night, July 13–14, going out on the north side, and no large captures of armed soldiers were made.

With the capture of the native walled city quiet reigned in the Tien-Tsin foreign concessions, and there was no interruption to the preparations for the march on Pekin.

The events of the latter part of June and the first two weeks of July, just described, impressed the powers with the necessity of largely increasing their forces in China, as it was now anticipated that the march to Peking would be contested by the whole military power of the nation available in that vicinity. On the part of the United States, as early as June 22, the

Adjutant-General of the Army inquired of Major-General MacArthur if he could spare another regiment for China, and on June 26 Major-General Adna R. Chaffee, U. S. Volunteers (colonel Eighth Cavalry), was ordered to China to assume command of the military forces of the United States. On July 7 instructions were cabled to General MacArthur to send the Fourteenth or Twentieth Infantry, and Taylor's Battery. Both of the infantry regiments mentioned, except one battalion, Fourteenth Infantry, which had returned to the United States, were doing duty in the city of Manila, and either could be quickly prepared for the required service. The Fourteenth Infantry was selected, and Reilly's Battery (F, Fifth Artillery, afterwards Tenth Battery, Field Artillery) was ordered instead of Taylor's, being more available. Arrangements were also made by the War Department to divert troops en route to Manila to China if the necessity became pressing. The Sixth Cavalry (two squadrons), one battalion of the Fifteenth Infantry, one battalion of the Third Artillery, and a battalion of marines were so diverted.

Six companies of the Fourteenth Infantry sailed from Manila, July 15, on the chartered transport *Indiana;* two companies of the Fourteenth Infantry, the battery, and the horses of the mounted officers, Fourteenth Infantry, on the *Flintshire* the same day. The wagon transportation of the Fourteenth Infantry was on the *Wyefield*, which followed a day or two later. With these troops were sent, besides the transportation and necessary forage, subsistence supplies for 5,000 men for three months, clothing for the Ninth Infantry, small-arm ammunition, and miscellaneous ordnance supplies. The strength of this command was: Fourteenth Infantry, 26 officers, 1,135 men; Light Battery F, Fifth Artillery, 3 officers, 146 enlisted men.

The graduates present were:

Staff officer: Capt. William Crozier, Ordnance Department ('76).

With the Fourteenth Infantry: Capt. John C. F. Tillson ('78), Capt. William B. Reynolds ('79), Capt. Frank F. Eastman ('79), Capt. Alfred Hasbrouck, jr. ('83), Capt. Charles H. Martin ('87), Capt. John R. M. Taylor ('89), Capt. Henry

G. Learned ('90), First Lieut. Louis M. Nuttman ('95), First Lieut. William A. Burnside ('96), First Lieut. Frank M. Savage ('97), First Lieut. Joseph F. Gohn ('98), Second Lieut. James Hanson ('99), Second Lieut. Duncan K. Major, jr. ('99), Second Lieut. Albert N. McClure ('99).

With Light Battery F, Fifth Artillery: First Lieut. Charles P. Summerall ('92), Second Lieut. Manus McCloskey ('98).

Graduates of the class of 1900 joined the Fourteenth Infantry in September. They were Second Lieuts. Harry E. Mitchell, Ernest E. Allen, and Pressley K. Brice.

Captain Frederick C. Palmer, Ninth Infantry ('84), accompanied the Fourteenth Infantry, rejoining his regiment from hospital. Major George P. Scriven, Signal Corps ('78), proceeded from Manila to Taku on the *Wyefield*, arriving August 2, and becoming chief signal officer of the expedition.

The *Indiana* arrived at Taku on July 26. The troops were disembarked and forwarded to Tientsin with the least possible delay. The *Flintshire* arrived July 29. In the meantime Captain Ramsey, quartermaster Ninth Infantry, had unloaded the *Logan* and dispatched her to Nagasaki, and upon the arrival of two officers of the Quartermaster's Department, Captains Joseph C. Byron ('86) and Winthrop S. Wood ('89), the needs of the United States as to lighters were made known to them and they at once went to work to remedy the situation. Other foreign nations, except Japan, were also in somewhat of a predicament as to landing facilities, and it was only by the greatest activity that they could be outdone in the race to secure what was required. These officers were successful in getting two 70-ton scows, or barges, from Chefoo, and from Shanghai a fair-sized coasting steamer named the *Pechili*, which could, at high water, go over the bar. The anchorage was, however, so far from shore that in high winds the sea was heavy and no work could be accomplished. The battery was much delayed by a gale of wind.

The *Pechili's* cables parted at night, July 31, while loading horses from the *Flintshire*, and the barge having the guns aboard was with difficulty kept from foundering. The steamer was obliged to go into the Peiho River to Tongku the morning of August 1 with what was aboard, and while a

tug was towing in the barge the cable broke and guns and carriages and men aboard were for a time in danger of being driven to sea. They rigged a sail, however, and by the greatest good luck were boarded by an officer of the customs service who knew the channel, and with his assistance the barge was successfully guided across the bar and into the river.

General Chaffee arrived at Taku from the United States July 29 on the transport *Grant* with the men of the Sixth Cavalry and a battalion of marines. He went to Tientsin at once, arriving there July 30 at 11 a. m. With him were three graduates—Major Samuel M. Mills, Sixth Artillery ('65), who had reported to him at Nagasaki pursuant to telegraphic instructions from the War Department for duty on his staff; Captain Grote Hutcheson, Sixth Cavalry ('84), who was announced at once as adjutant-general of the China Relief Expedition, and Second Lieut. Roy B. Harper, Seventh Cavalry ('97), aid de camp.

The graduates with the Sixth Cavalry were: Captain Augustus P. Blocksom ('77), Captain William W. Forsyth ('82), Captain DeRosey C. Cabell ('84), First Lieut. John T. Nance ('86), First Lieut. Charles D. Rhodes ('89), First Lieut. Francis C. Marshall ('90), First Lieut. John W. Furlong ('91), First Lieut. Thomas M. Corcoran ('91), First Lieut. Benjamin B. Hyer ('93), First Lieut. Herbert A. White ('95), First Lieut. Elvin R. Heiberg ('96), Second Lieut. Malin Craig ('98), Second Lieut. Wallace B. Scales ('98), Second Lieut. Patrick W. Guiney ('99), Second Lieut. Stuart Heintzelman ('99).

Graduates of the class of 1900 joined the Sixth Cavalry in September. They were Second Lieuts. Joseph A. Baer, Willis V. Morris, and Walter S. Grant.

The number of troops of all nations at Tien-Tsin by August 1 was about 20,000—Japanese, 10,000; Russian, 5,000; British and American, each, 2,000; French, Italian, Austrian, together, about 1,000, chiefly French.

General Chaffee's arrival gave an impetus in the councils of the generals in favor of immediate advance on Pekin. The British and Japanese generals (Lieutenant-General Sir Alfred Gaselee and Lieutenant-General Yamagutchi) were in favor

of such action, but the Russian general desired delay for the arrival of a larger force. While the councils and preparations were in progress at Tien-Tsin the desperate state of the legations at Pekin was communicated to the military authorities by secret messengers, who at long intervals succeeded in reaching Tien-Tsin. The determination to advance was arrived at shortly after General Chaffee arrived, August 4 being set as the date. The American command was to consist of the Ninth Infantry, Fourteenth Infantry, Light Battery F, Fifth Artillery, and two battalions of marines, in all about 2,000 men. The Sixth Cavalry had arrived at Tien-Tsin, but the horses were still on the ships at Taku, and the squadrons were ordered to await them, remaining as guard at Tien-Tsin. One troop, Captain Cabell's, received their mounts and overtook the relief column on August 9.

The duty of preparing the transportation of the American contingent of the expedition fell to Captain Ramsey, Ninth Infantry, who was announced in orders as chief commissary and acting chief quartermaster. The only wagons available were those which the Ninth Infantry had brought and a number of Chinese carts which the marines secured in the vicinity of Tien-Tsin. A pack train arrived just in time to join the expedition, relieving the wagons of a considerable part of their loads of ammunition. Main dependence was, however, placed on the flotilla of Chinese junks in the Peiho River, near which the road to Pekin found its way. The main supply of rations and other stores was carried on the junks, the wagons being used to haul from them to the troops.

The expedition moved out August 4, and camped at Siku Arsenal, 3 miles north of Tien-Tsin walled city. Early the next morning, August 5, the Japanese fought the battle of Peitsang, driving the Chinese regular troops from an entrenched position, and sustaining a loss of 60 killed, 240 wounded. There were a few casualties among the British and Russians, the latter being on the east side of the Peiho River, but the Americans were in reserve and suffered no losses. The advance was resumed the following day, the American and British troops crossing the river to the east

side and the Japanese continuing on the west. The Chinese had intrenched again at Yangtsun, 12 miles farther on, and awaited the advance of the allies. The country was nearly level, and the railroad pursued a straight course northward, most of the way on an embankment, to Yangtsun, at which place it crossed from the east to the west side of the river and continued toward Pekin, leaving the course of the stream. The Americans followed the railroad embankment; the British and Russians kept the road near the river, giving them a longer march. The Japanese met obstacles on their side in the nature of inundated country and broken bridges, delaying their progress.

The Chinese position near Yangtsun was approached about 11 a. m., after a very hot and exhausting march, the men suffering intensely from thirst. They were obliged to go into battle in fields of high millet with no water in their canteens. The Ninth Infantry, the marines, and the battery crossed to the east side of the railroad when the firing began, and the battery did excellent service against villages to the eastward of Yangtsun, which were occupied by Chinese guns and infantry. It was advanced rapidly, the marines being in support, and was kept well up with the infantry firing line, at one time receiving a stiff musketry fire at close range. Much of the battery's firing was done by quadrant elevation, the high millet preventing a clear view of the field. Captain Reilly and Lieutenants Summerall and McCloskey observed the shots from housetops, an observation ladder, or the tops of ammunition chests, exposing themselves boldly in order to secure the greatest effectiveness of their guns. The Ninth Infantry, on the right flank of the allied forces, had one battalion deployed, the others in support. They advanced steadily, clearing out the villages as they passed, and at times were subjected to accurate shrapnel fire as well as musketry.

On the other side of the railroad, between it and the river, the Russians opened with volleys at long range, and British and Russian batteries shelled the Chinese intrenchments and Chinese guns, which were in positions near the railroad station, close by the bridge. The Fourteenth Infantry, fighting

alongside British Sikhs, pushed forward rapidly without returning the enemy's fire, and when within a few hundred yards of a small village Colonel Daggett ordered a charge. The Chinese were most gallantly driven out of their position, and a few minutes later the portion of the line nearest the railroad embankment charged the station. The companies in advance in these movements were Companies K and M, Fourteenth Infantry, leading, Companies L and I in support. With the former were Lieutenant Burnside and Captain Martin, and with the latter Lieutenant McClure and Captain Taylor. Other officers, nongraduates, were there too, among whom Lieutenant Murphy was mentioned for magnificent conduct throughout the fight, being the first to reach the enemy's position at the railroad station. The Second Battalion, Fourteenth Infantry, commanded by Captain Eastman, was close up in support of the leading one and suffered some losses. It was, in addition, most unfortunate in being fired upon by British or Russian batteries after coming up on the railroad embankment, losing 15 killed and wounded. The losses of the Americans were greater than those of any of the other allies, numbering in all 9 killed, 65 wounded. Many men were prostrated by heat. Sixteen of the wounded died within a few days.

The allies remained in camp at Yangtsun August 7, in accordance with the plan of the generals as agreed upon before departure from Tien-Tsin, and arrangements were perfected for farther advance. During the night of the 6th and early morning of the 7th First Lieut. Louis R. Burgess ('92), of the field artillery, made a plucky march with a handful of men from Tien-Tsin to Yang-tsun to overtake the battery, having just arrived from Manila.

The march of the allies from Yang-tsun August 8 to the immediate vicinity of Pekin was not seriously opposed. The Japanese, who were in the lead, brushed away all detachments in their front and easily forced open the gates at the walled towns. It was an exhausting march on account of the heat and dust. At Matow 100 exhausted and sick men were left with detachments of the other allies, the 100 Americans being

under the command of Captain Hasbrouck, Fourteenth Infantry. On the 12th the expedition arrived at Tung-chow, a walled city on the Pei-ho River, at the point where the route to Pekin left the river and took a westerly course following an old canal and paved road. Pekin was about 13 miles distant. Here again the Russian general was disposed to delay, but the others favored marching at once to Pekin. It was finally decided to spend the 13th of August in reconnoissance, and in moving forward to a line about 6 miles from Pekin, where the plan of attack should be determined. But early on the 14th it was ascertained that the Russians had pushed on during the night, without waiting for a conference, and were already at the Tung-pien gate of Pekin.

General Chaffee, as soon as he learned the whereabouts of the Russians, ordered Cabell's troop forward, and supported it shortly after by a battalion of the Fourteenth Infantry. The cavalry advanced to within 1½ miles of the wall, driving off small detachments of Boxers, but was then opposed by a superior force, and fell back 500 yards to a village, where it withstood the enemy until the arrival of General Chaffee with the battalion of the Fourteenth Infantry. Both Captain Cabell and his lieutenant, Guiney, were recommended by General Chaffee for good judgment and gallant conduct in these maneuvers. All the American command was ordered up, and the battery was placed in position to fire first at the high pagoda over the southeast corner of the Tartar wall. Twenty thorite shells were fired at a range of 3,200 yards. Soon afterwards it was ordered forward about a mile and opened on the enemy occupying the east wall of the Chinese city from the northeast corner southward. Its fire in that direction, together with the fire of the Fourteenth Infantry companies, was effective along the wall to the next gate, Shawomen, and against the pagoda surmounting that gate, driving off the Chinese and clearing the way for the entrance of the British column at that point an hour or two later. In the meantime the second battalion, Fourteenth Infantry, having its companies moved forward under the personal direction of General Chaffee and directed toward outlying villages to drive off Chinese snipers, gradually worked onward, drawing fire from the Tartar wall; but

UNITED STATES INFANTRY MOVING UP TO THE GATE, PEKIN.

finally, by rushes, two companies crossed by a bridge near the northeast corner of the Chinese wall, to the wall itself, which was not occupied by the enemy in that immediate vicinity. They halted there to observe the situation; a packed and confused crowd of Russian troops occupying the Tung-pien gate further on. These were companies E and H.

To successfully oppose the fire from the Tartar wall it appeared to be necessary to gain the top of the Chinese wall. Musician Calvin P. Titus, of Company E, volunteered to attempt it first, and under the breathless attention of his officers and comrades succeeded in scaling it by finding footholds on each side at an angle made by a bastion with the curtain. He climbed thus 22 feet, and was the first American on the wall. He was quickly followed by Captain Learned, adjutant, and Lieutenant Gohn, who commanded Company E. Other men of the company were assisted to the top with ropes and ladders made of poles and wire, and at the same time Company H succeeded in ascending at a similar angle not far away. The attention of these companies was first given to the fire from the pagoda of the Sha-Huo gate, southward, aiding the battery which was engaged, as mentioned before, in driving the Chinese from that position; then to the buildings within the wall near the Tsung-Pien-Men, but the proximity of the Russians prevented much effective fire in that direction or toward the Tartar wall. The colors of the Fourteenth Infantry were brought up at this time and placed on the wall, and Captain Crozier and Lieutenant Ferguson were among those who climbed to the top a short time later.

It was now about 11.30 a. m. A situation had developed at the Tung-pien gate which called for energetic and intrepid action. The Russians had succeeded in blowing in the massive doors with artillery some hours before, and, after much fighting with considerable loss, had pushed their way in and endeavored to gain the open ground in front of the Tartar wall—an immense wall 40 feet high with bastions and crenelated crest extending across the city from east to west, dividing the Chinese section on the south from the Tartar section on the north—but the fire from the bastions and from the pagoda at the southeast angle of the wall had

stopped them. Infantry and artillery were standing in a confused crowd at the gate and sheltering themselves among the buildings just within, unable to advance.

The Japanese had been engaged all the morning at other gates farther north; the British were approaching the Sha-Huo gate to the south, from which the enemy had been driven by the American battery and the Fourteenth Infantry companies, as already described, their fire being supplemented later by a British battery, which came into action on their line of approach from Tung-Chow.

It was at this moment that General Chaffee came up in person to the Tsung-Pien gate, observed the situation, and determined to push through the Russians and move his artillery and infantry to the front, where they could do something. His own intrepid and determined character, supported by the intelligent and energetic action of Colonel Daggett and Captain Reilly, brought life and action into what had become a stalled and well-nigh defeated attack. The official account of the battery's part in the action, as written for the War Department records by one of its lieutenants, states:

An officer of the Fourteenth Infantry reported that a part of the regiment had reached the wall but needed some guns to subdue the Chinese fire. Captain Reilly took Lieutenant Summerall's platoon forward. The guns soon came under the Chinese fire from the tower of the Sha-Huo gate. They immediately opened fire from the road at the northeast corner of the Chinese city wall, enfilading the east wall and driving the Chinese from the Sha-Huo gate. The platoon then advanced to the Tsung-Pien gate, which was found open. The narrow street inside the wall was packed with Russian troops. Many Russian dead were lying outside. The Russians were all under cover of the brick and mud buildings along the street. Two guns were pointed toward the walls of the Tartar city, but fired only a few shots after the American guns arrived. The heavy firing of the previous night was at once explained. The Russians had stormed the gate and had blown it open with their guns, but were unable to advance beyond it. They had lost severely and were trying to keep under cover until help came. The platoon drove into the street, but found it blocked by the Russian guns and carts. An officer of the Russian battery spoke to Lieutenant Summerall and said that it was useless for the Americans to try to advance farther, as he had tried to rush his guns forward and lost every horse in the first carriage, which he had to abandon. The Chinese occupied the walls of the Tartar city 100 yards away, and were firing through the crenelated

parapet with great accuracy at every exposed part of the street. The Russian guns were moved by the men of the platoon and one of our guns opened fire from its position, as there was no other place in the street through which a gun could fire. Captain Reilly rode through an alley to the left of the street and found an open space for the two guns. The piece not in action started through the alley, but the space was too narrow and the gun carriage jammed. Fortunately, just at this section of the alley one side was a brick wall, which the cannoneers quickly tore down, enabling the gun to pass. The alley was enfiladed from the Tartar wall, and but for the rapid and effective fire of the gun in action the section in the alley would probably have suffered. As soon as the advance piece opened fire from the left, the piece in the street was placed beside it, and from this position the south wall of the Tartar city was enfiladed; and all that portion of the east wall, including the pagoda, from which the Chinese could fire into the Chinese city, was commanded. The guns fired with rapidity and effect, at ranges of from 200 yards to as great as necessary to reach the Hai-Ta-Men gate. The shrapnel demolished the parapet and sent fragments of brick along with the bullets, sweeping the top of the wall. In this way the bastions were attacked successively.

The moat along the south side of the Tartar city wall is crossed by a stone bridge from the Tung-Pien gate. This bridge was swept by the Chinese fire when the guns went into action, but in a short while it could be crossed with safety. The remainder of the battery and the American infantry came up shortly afterwards and advanced across the Tang-Sang bridge into the Chinese city. Captain Reilly ordered Lieutenant Summerall to continue enfilading the Tartar wall and cover the advance of the Americans along the streets parallel to the walls. Shortly afterwards orders came to move the platoon forward. It had not gone far when other orders directed it to return and resume firing, because the Chinese reoccupied the wall as soon as firing ceased. The platoon remained in this position, sweeping the walls with its fire until 5.30. p. m. Most of the Russian troops followed the Americans into the city. The American marines remained with the platoon until about 4 p. m., when they were ordered back to guard the wagon train. The caissons and the battery wagon remained with the left platoon. The marines had occupied the wall of the Chinese city at the Tung-Pien gate and kept down the fire from that direction. After they withdrew the Chinese on the east wall of the Tartar city endeavored to reach the guns with their fire, but sufficient protection was afforded by the north wall of the Chinese city. At about 4.30 p. m. a Russian officer sent a note to Lieutenant Summerall, requesting that he cease firing long enough to permit the two remaining Russian guns to pass in front of his guns, as he had orders to withdraw. There was then left at the gate a small detachment of Cossacks. As nothing had been heard of the American troops since they

left the platoon that morning, Sergeant Wolfe was sent to learn their whereabouts. He returned and reported that they were in camp near the Chien-Men gate. Lieutenant Summerall then proceeded to the camp with his platoon, and the caissons, battery wagon, and spare horses. On the way one of the spare horses succumbed from exhaustion. This was the first horse lost after the disembarkation. The Japanese who attacked the east wall of the Tartar city with their entire force early on the 14th were heavily engaged until 10 o'clock at night, when the main gate was blown in and the wall was captured. It was afterwards learned that the British entered the Sha-Huo gate shortly after the Chinese had been driven from it by the left platoon and the Fourteenth Infantry. They advanced along the center of the Chinese city to a point opposite the legations, being protected by the American fire from the Chinese on the south wall of the Tartar city.

Colonel Daggett's account of events at this juncture reads as follows:

About 11:20 a. m. General Chaffee's attention was called to the Fourteenth Infantry flag on the wall near the Tung gate. The British advance being near relieved the American left. General Chaffee then ordered all of his troops that had not entered the city to move to the Tung gate. Here everything was in confusion. A Russian battery and company of infantry were in the narrow street. The American troops that had just arrived were trying to press their way through. Reilly somehow forced two of his guns—the left platoon—through, and by tearing down a building got them into action. While tearing down the building one of the guns fired into the tower from the narrow street. In this he was assisted by Captain Eastman with a company of the Fourteenth Infantry. Lieutenant Burgess says: "Lieutenant Kilbourne, Fourteenth Infantry, rendered valuable assistance by covering the movement of the platoon in this position with a squad of infantry under his command."

The artillery and infantry fire soon drove the Chinese out of the tower and rendered the crossing of the Tan-Sang bridge comparatively safe. The left platoon remained in this position, firing on the south wall of the Tartar city until 5.30 in the afternoon. The four other guns crossed the Tan-Sang bridge and ford and proceeded in a westerly direction. At the crossing of the street near the Haita gate a gun was put in position to silence the fire at that point from the wall, which it did. The first platoon then proceeded to and entered the Chien gate, and fired one shot at the gate of the Imperial city, when orders were received to suspend further operations.

The center platoon, Lieutenant McCloskey, escorted by a platoon of the Ninth Infantry under Lieutenant Welborn, proceeded also along a

street parallel to the wall of the Tartar city, and when within about 400 yards of the Haita gate fired about 22 shots into it. Moving to the western opening of the gate it fired 2 shells into the opening, "raising the portcullis 18 inches from the ground." The battery was then assembled for the purpose of entering the grounds of the legations.

During the forenoon of the 14th, and while the battery was in different positions east of the Chinese city, the third battalion of the Fourteenth Infantry was its support. About noon the Ninth Infantry moved to the Tung-Pien gate, where it was delayed by the crowded condition in the narrow entrance and street beyond. It finally moved forward, following the route passed over by the Fourteenth Infantry and battery. It placed a few men on the buildings to keep down "snipers" that remained on the wall.

The marines acted as guard to the wagon train much of the time. Company A, Lieutenant Butler, was sent to the wall of the Chinese city, and placed a few men thereon to prevent "sniping."

To the American force should be given the credit of clearing the way for the British at the Sha-Huo gate, for taking up the work of the Russians at Tung-Pien gate and carrying it on to success, and for clearing the south wall of the Tartar city from the southeast angle to the Chien gate, thus preparing the way for the British, so that upon entering at the Sha-Huo gate the latter were able to march northward without firing a shot, pass under the Tartar wall at the "water gate," a sluiceway between Hata-Men and Chien-Men, and achieve the distinction of being the first to enter the legations. A better knowledge of the situation of the water gate and the practicability of entering that way would have enabled the Americans to themselves have reaped the glory of appearing first at the legations, a goal which they had justly won by their valor.

The 15th of August, that is, the day following the entrance into the city, was another day of fighting for the Americans. General Chaffee learned from Mr. Edwin H. Conger, the United States minister, that portions of the Imperial city had been used as positions from which to fire upon the legations, and he decided to occupy that locality. The Imperial city was an interior portion of the Tartar city surrounding the still more interior part known as the "forbidden city," which was the residence of the Emperor and Empress Dowager,

the depository of ancient official records, and the storehouse of silks and gold. High walls protected these interior fastnesses and a series of massive gateways, with pagoda-like structures surmounting them, stood across the main north-and-south avenue leading into the most interior throne room.

The camp of the American troops on the night of August 14 was along the south side of the Tartar wall, the legations being just within on the north side. At 7 a. m., August 15, General Chaffee led his command to the Chien gate, which had been held during the night by an American detachment, and sending the marines up into the pagoda the way was cleared of débris by them, giving places for four guns of Reilly's Battery, the center platoon (McCloskey's) being faced westward to sweep the top of the wall to the next gate, and the right platoon (Burgess's) northward to fire over the first gate (Ta-ching-men), a low one, to the pagoda on the Tien-fu gate, 600 yards distant. Summerall's platoon, which had led the preceding day, was held below, sheltered by the wall at the first gate of the Imperial city (Ta-ching-men). The infantry was marched within the Chien-men and was also protected from the fire from the second gate of the Imperial city (Tien-fu-men) by the wall at the first. It was, however, subjected to slight flank fire from the left. The guns on Chien-men in an hour silenced the fire from the pagoda next west on the Tartar wall and were turned on the pagoda at Tien-fu-men, from which the fire was becoming more intense. The Fourteenth Infantry had in the meantime battered down one of the center doors in the Ta-ching-men. Colonel Daggett entered with his staff officers, and observing the necessity of bringing a powerful fire on the Tien-fu-men ordered up Lieutenant Summerall's platoon to burst open the doors on the right and left of the middle door. The area into which entrance was now given was paved with granite, was 600 yards long, terminated at the northern end by the pagoda, gateway, and wall of the Tien-fu-men, and was flanked by the walls of long storehouses.

Colonel Daggett ordered in a platoon of his regiment, put the guns in position at the battered portals, including a Ninth Infantry gatling gun, under the command, at the time, of

Lieutenant Corcoran, Sixth Cavalry, and at the same moment the remaining guns of Reilly's Battery and the marines on Chien-men, in rear, redoubled their fire. It was a tremendous fusilade of a most unique and spectacular character. The Chinese were unable to withstand it long and at the end of an hour, under the influence of this fire and flank attacks on side streets by companies of the Fourteenth Infantry, retired from Tien-fu-men. But in the combat the Americans lost Captain Reilly, killed while sighting one of his guns on Chien-men, also 4 men of the Fourteenth Infantry and 1 of the Ninth Infantry, killed at the gateway, 1 officer (marine) and 21 men wounded. It was now possible to advance to the Tien-fu-men. The heavy doors in this were battered down by Summerall's guns, and the way was open for fire on the next gate (Tuan-men). The return fire of the Chinese was not so severe, and was shortly silenced. The command then advanced to Tuan-men, opened it as before, and came in view of the Wu-men, which is the entrance to the forbidden city, and was practically undefended. Here the advance was stayed, as a council of the commanding generals decided that the crowning achievement of the campaign, the final act of overthrow of the enemy, should be participated in by all the powers. The other allies had so far taken little part in the closing scene of the drama. The Americans, although withdrawn on August 15, were returned to the Imperial city August 19, and finally were left in possession of the Wu-men.

The march into the forbidden city was made as a formal military display on Tuesday, August 28, 1900, all the allies taking part with detachments approximately proportionate to their military forces in China. The order of entry and the number of men of each nation was as follows:

1. Russians	800
2. Japanese	800
3. English	400
4. American	400
5. French	400
6. German	250
7. Italian	60
8. Austrian	60

The American contingent was made up of detachments from all the organizations which participated in the march to Pekin.

General Chaffee's report of these operations and his indorsements on the reports of subordinate commanders gives credit to many officers for gallant conduct and meritorious service. Among the graduates mentioned are the following:

Personal staff officers.—Second Lieut. Roy B. Harper, Seventh Cavalry, aid-de-camp; First Lieut. John W. Furlong, Sixth Cavalry, acting aid-de-camp, and First Lieut. Benjamin B. Hyer, Sixth Cavalry, acting aid-de-camp, for gallantry at Yang-tsun and Pekin.

Expeditionary staff officers.—Captain Grote Hutcheson, Sixth Cavalry, for special efficiency as acting adjutant-general and fine soldierly qualities under fire; Major George P. Scriven, signal officer, for efficient service as chief signal officer and for gallantry at Yang-tsun and Pekin; Captain William Crozier, Ordnance Department, chief ordnance officer, for active assistance on the field of battle and gallantry at Yang-tsun and Pekin; First Lieut. Harley B. Ferguson, Corps of Engineers, for valuable services as acting aid-de-camp, and coolness and bravery under fire; Captain Frank DeW. Ramsey, Ninth Infantry, chief quartermaster and chief commissary, for especially meritorious and arduous services in his departments, in which he was ably assisted by Second Lieut. Malin Craig, Sixth Cavalry; Lieut. Colonel John S. Mallory, Forty-first Infantry, U. S. Volunteers (captain, Second Infantry), for tactfulness and good judgment in the performance of special duties assigned him at the headquarters of the commanding general of the Japanese forces; Major Samuel M. Mills, Sixth Artillery, for similar services at the headquarters of the commanding general, English forces.

Ninth Infantry.—Captain Frederick L. Palmer, commanding a battalion during the march, for marked efficiency.

Fourteenth Infantry.—Captain Frank F. Eastman, for efficient services during the battle at Pekin; Captain Charles H. Martin and Captain John R. M. Taylor, for gallant and

efficient services at Yang-tsun and at Pekin; Captain Henry G. Learned, for conspicuous gallantry and efficient services in scaling the wall of the Chinese city of Pekin; First Lieut. Joseph F. Gohn and Second Lieut. James Hanson, for scaling the wall of the Chinese city at Pekin; Second Lieut. Albert N. McClure, Fifth Cavalry (serving with Fourteenth Infantry), for gallant and distinguished conduct while commanding his company in the battle for the possession of the gate to the Imperial city, Pekin; and Musician Calvin P. Titus (who afterwards entered the Military Academy as a Cadet), for daring and gallant conduct, in that he was the first to scale the wall of the Chinese city, Pekin.

Sixth Cavalry.—Captain De Rosey C. Cabell, for gallant and efficient services near Pekin; Second Lieut. Patrick W. Guiney, for coolness and gallantry in action near Pekin.

Light Battery F, Fifth Artillery.—First Lieut. Charles P. Summerall, for gallantry in action and for efficient services while in command of his platoon storming the gate to the Imperial city, Pekin.

Graduates mentioned in the reports of other officers were First Lieut. Thomas M. Corcoran, Sixth Cavalry, by Colonel Daggett and Lieutenant-Colonel Coolidge, for good work with the Gatling gun at the gate of the Imperial city; Captain William B. Reynolds, quartermaster, Fourteenth Infantry, by Colonel Daggett, for gallant conduct at Yang-tsun; First Lieut. Louis M. Nuttman and First Lieut. William A. Burnside, by Major Quinton, who commanded the leading battalion, Fourteenth Infantry, at Yang-tsun, and who reported also that every officer in his battalion earned and deserved special mention and reward.

Lieutenant-Colonel Coolidge reported, as regimental commander, Ninth Infantry, at Yang-tsun, that the officers did their duty faithfully during the entire day. At Pekin, he stated that "while the officers and men were zealous in the performance of the duties that fell to their lot, yet the position of the regiment as second in a column where the front was very restricted, gave them little opportunity to display any marked acts calling for special recommendation, except

in the case of Lieutenant Corcoran, Sixth Cavalry, with Gatling gun."

Major Quinton said, in his report for August 15, at Pekin:

> I desire to bring to the especial notice of the general commanding, for gallantry, coolness, and soldierly behavior in this action, Captains C. H. Martin and J. R. M. Taylor, and Lieuts. W. A. Burnside and A. N. McClure.

Lieutenant-General Sir Alfred Gaselee, commanding British forces, transmitted to General Chaffee extracts from reports of his officers, mentioning Captain Taylor (also Major Quinton, a nongraduate) at Yang-tsun, attention being called to Captain Taylor "for the very gallant way he led his men to attack the second village under a heavy fire, and also for the great help he gave in forming the men up for the second attack on the village."

After the relief of the legations, Pekin was divided into districts for police and general administrative control, the Americans being assigned portions of the Tartar city, and the Chinese city, besides holding the control of the principal entrance to the Forbidden city, the Japanese controlling the other gates.

While the advance to Pekin was in progress the First and Third squadrons, Sixth Cavalry, remained at Tien-tsin, guarding American supplies accumulating there, and assisting in the protection of the city. Their horses arrived at Ta-ku and were forwarded to Tien-Tsin as soon as they could be put ashore. The city and the line of communication to the relief expedition were threatened during the first part of August, and First Lieut. Elvin R. Heiberg, Sixth Cavalry, encountered a considerable force while reconnoitering with his troop, but suffered no losses, although the enemy's line was approached to within 200 yards.

Several thousand Boxers congregated at a walled town about 5 miles from Tien-Tsin, and a plan was made to disperse them. It was executed under the direction of Brigadier-General Dorward, British army, 6 troops of the Sixth Cavalry, under Lieutenant-Colonel Wint—about 500 men—constituting the chief part of the force. English and Japanese were

the other participants. The command moved out from Tien-Tsin early in the morning of August 19, and under the guidance of First Lieut. Francis C. Marshall, Sixth Cavalry, who had made himself familiar with the locality, came in contact with the Boxers about 6 a. m. Troops A, C, and D were commanded by Captain Augustus P. Blocksom; Troops I, K, and L by Captain William W. Forsyth. Blocksom's squadron had the advance and developed the enemy's strength, coming under fire about 6 a. m., and being more or less engaged fighting on foot and advancing until 9.30 a. m. The British contingent of about 350 men then came into action on the left of the allies, and "Captain Blocksom mounted his squadron and made a splendid and most successful charge, completely routing the enemy, who dispersed in all directions, no longer showing fight." (Lieutenant-Colonel Wint's report.) Captain Forsyth's squadron was at first in support, and later operated on the right flank. General Chaffee's indorsement, forwarding the report of this engagement, stated the importance of the action as follows:

> The defeat and routing of the Boxers and Chinese troops, about 5,000, near Tien-Tsin, August 19, 1900, was practically the work of the Sixth Cavalry, splendidly handled by Lieut. Colonel T. J. Wint, commanding the regiment, and Captains Blocksom and Forsyth, squadron commanders, who were ably assisted by troop commanders. Every officer was keenly intent on the work before him and watchful for his opportunity and the moment he might strike with vigor. The victory had far-reaching effect. It relieved Tien-Tsin of the near presence of a considerable body of the enemy, which was daily increasing in numbers and threatened the security of our base of supply and line of communication to Taku Bay.

He recommended Lieutenant-Colonel Wint, Captains Blocksom and Forsyth, and Lieutenant Marshall to be brevetted "for gallant conduct in battle."

The strength of the American force in China was further augmented in August by the arrival of headquarters and one battalion of the Fifteenth Infantry, under command of Colonel Edward Moale, Fifteenth Infantry, and a battalion of the Third Artillery, equipped as infantry.

The graduates with the Fifteenth Infantry were: Major Edgar B. Robertson ('74), Captain James A. Maney ('77),

Captain Samuel E. Smiley ('85), Captain Edmund Wittenmyer ('87), First Lieut. John McA. Palmer ('92), First Lieut. George McD. Weeks ('92), First Lieut. John K. Moore ('97), Second Lieut. Arthur S. Cowan ('99).

With the Third Artillery: Captain Charles H. Hunter ('80), Captain Charles A. Bennett ('81), First Lieut. Archibald Campbell ('89), First Lieut. William S. McNair ('90), First Lieut. George H. McManus ('93), Second Lieut. Henry B. Clark ('99).

Brigadier-General Thomas H. Barry, U. S. Volunteers ('77), arrived with the Fifteenth Infantry battalion for temporary duty in China, proceeding to Manila early in September. Brigadier-General James H. Wilson, U. S. Volunteers ('60), accompanied by his aid de camp, First Lieut. James H. Reeves, Second Cavalry ('92), arrived the first week of September, reporting to General Chaffee at Pekin on September 7. General Wilson's former residence and travels in China fitted him especially for service there, and he had been selected by the President for duty as second in command of the United States forces.

General Chaffee organized his troops into two brigades on September 4, the First Brigade comprising all troops at Pekin, General Wilson commanding; the Second Brigade, all troops at and in the vicinity of Tien-Tsin, Colonel Moale, Fifteenth Infantry, commanding. The third squadron, Sixth Cavalry, had previously been brought to Pekin and was included in the First Brigade.

During the months succeeding the relief of Pekin the allies sent small expeditions from time to time into the country surrounding Pekin and Tien-Tsin to gain information, suppress marauding Boxers, and repel Chinese regular troops, but the Americans experienced no losses, and their encounters with the enemy were of minor importance.

Lieutenant Hyer, commanding Troop L, Sixth Cavalry, while reconnoitering with 63 men of his troop, September 3 to 6, displayed marked courage in attacking and routing a force of about 500 imperial troops at a town 25 miles from Pekin. He succeeded in making a surprise, killed 27, wounded 40, captured 150 rifles, and secured the personal

flag of the military governor of the Province. For highly gallant conduct in this affair he was recommended by General Chaffee to be brevetted major, and Second Lieut. Wallace B. Scales, Sixth Cavalry, was recommended to be brevetted first lieutenant.

September 9 to 13 Companies C and D, Fifteenth Infantry, commanded by Major Robertson, joined a force of allies marching from Tien-Tsin to operate against a force of Boxers at Tu-liu, 22 miles distant. The place was occupied without opposition and the command returned to Tien-Tsin.

September 17–18 a force of about 2,000 allies was organized at Pekin to drive the Boxers from the vicinity of the Hun-ho River and the Pa-ta-chow temples west of Pekin. The British and American contingent operated together under the command of Brigadier-General James H. Wilson. First Lieut. Charles D. Rhodes, Sixth Cavalry, who had previously been detailed as adjutant-general of the First Brigade, acted as adjutant-general of the expeditionary force, and Captain Martin, Fourteenth Infantry, as quartermaster. The American contingent comprised two battalions of the Ninth Infantry, one battalion of the Fourteenth Infantry, a platoon of artillery, and a detachment of cavalry. The Boxers were believed to be in considerable force and occupying a strong position, but they were easily flanked out and put to flight, offering slight resistance.

Captain Forsyth, Sixth Cavalry, commanded several scouting expeditions from Pekin, consisting of one, two, or three troops of cavalry. His command usually came within close range of the enemy and experienced brisk encounters, but, as usual, without casualties, owing to the poor marksmanship of the Chinese.

A number of staff officers and officers assigned to special duties of observation reported to General Chaffee in August and September, having been sent to China in contemplation of a largely increased force and much more extended operations.

Among the staff officers were Major James B. Aleshire, quartermaster, U. S. Volunteers (captain, acting quartermaster) ('80); Major John T. Knight, quartermaster, U. S.

Volunteers (captain, acting quartermaster) ('84); Major John C. W. Brooks, quartermaster, U. S. Volunteers (captain, Fourth Artillery) ('85); Captain George C. Barnhardt, acting quartermaster, U. S. Volunteers (first lieutenant, Sixth Cavalry) ('92); Major Hugh J. Gallagher, commissary of subsistence, U. S. Volunteers (captain, Sixth Cavalry) ('84); Captain William H. Bean, commissary of subsistence ('86); Captain George Montgomery, Ordnance Department ('90).

The officers assigned to special duty, in addition to those already named, were Major Alexander Rogers, Fourth Cavalry ('75); Lieut. Colonel Joseph T. Dickman, Twenty-sixth Infantry, U. S. Volunteers (captain, Eighth Cavalry) ('81); Major William E. Craighill, Fortieth Infantry, U. S. Volunteers (captain, Corps of Engineers) ('85); Major Charles H. Muir, Thirty-eighth Infantry, U. S. Volunteers (captain, Second Infantry) ('85).

Two officers of the Ninth Infantry joined their regiment from detached service, viz, Captain Frank L. Dodds ('79), and Captain Mark L. Hersey ('87). Captain Thomas S. McCabb, Ninth Infantry ('75), was en route to join, but upon reaching Ta-ku was compelled to return to the United States on account of physical disability. First Lieut. Benjamin M. Hartshorne, jr. ('96), joined the Ninth Infantry from detached service in February, 1901, and First Lieut. George S. Simonds ('99), upon promotion in March, 1901. Captain Thomas Ridgeway, Fifth Artillery ('83), arrived to assume command of the battery upon promotion, vice Reilly. First Lieut. Julian R. Lindsey, Tenth Cavalry ('92), reported for duty September 7 as aid-de-camp to General Chaffee, and Lieut. Colonel Henry O. S. Heistand, assistant adjutant-general ('78), arriving in September, was announced September 27 as adjutant-general of the expedition.

The purpose of the United States Government to reduce the strength of the American force in China was published in orders September 29, and on October 21 the brigade organization was discontinued, the movement to the Philippines of all except the expeditionary staff, the Ninth Infantry, the Third Squadron, Sixth Cavalry, and Light Battery F, Fifth Artillery, beginning the same day. Thereafter the

force remaining in China was regarded as a legation guard, but it retained its designation as the China Relief Expedition until the 19th of May, 1901, holding forces at Tong-hu, Tien-Tsin, and Tung-chow, and guarding portions of the Tartar city and Chinese city, Pekin. Then a further reduction was made, General Chaffee and his staff and all troops except one company departing to the Philippines. From May, 1901, one company (B, Ninth Infantry) was left as legation guard, Major Robertson, Ninth Infantry, remaining as commanding officer, Captain Byron as quartermaster, and Lieutenant Welborn, Ninth Infantry, as adjutant and commissary.

The service of the American officers during the period of occupation of the Chinese cities, October, 1900, to May, 1901, was characterized by its justness and moderation in the treatment of the people, so much so that the inhabitants of the American districts in Pekin petitioned the United States forces to remain and retain control of their districts as long as any foreign troops occupied the city. These petitions were addressed, one to Major Robertson, who, upon transfer from the Fifteenth Infantry to the Ninth Infantry, remained in China upon the departure of the former regiment, having charge as provost-marshal in the American district of the Tartar city, and the other to Captain John C. F. Tillson, Fourteenth Infantry, who was detached from his regiment upon its departure, and had charge as provost-marshal in the American district, Chinese city. But the withdrawal of the American forces had been fully determined upon by the United States Government, and was carried into effect at the end of May, 1901, the transports *Sumner*, *Indiana*, and *Pakling*, having on board the squadron of the Sixth Cavalry, the battery, and the Ninth Infantry, except one company, sailing from Ta-ku for Manila on May 25 and 27.

By joining with so much promptness, strength, and effectiveness in the operations in China the United States of America demonstrated perhaps more decidedly than in any preceding incident of their history their position as a military power in the world and brought most distinctly to the minds of all

observers their readiness to take part in, and assert their influence over, the affairs of the Far East. Officers and enlisted men of the force who participated in the several expeditions and conflicts in the efforts to relieve the beleaguered legations exhibited to the soldiers of foreign nations the bravery, determination, resourcefulness, and intelligence of the American, and drew forth many expressions of admiration and esteem.

The graduates of the Military Academy were staff officers and commanders in subordinate positions. As such their places of duty were in the forefront of battle, leading their men or arranging and directing the details of administration, transportation, and supply. Everywhere they displayed intelligence, courage, and resourcefulness, maintaining honorably the good name of the Alma Mater.

THE SERVICES OF GRADUATES AS EXPLORERS, BUILDERS OF RAILWAYS, CANALS, BRIDGES, LIGHT-HOUSES, HARBORS, AND THE LIKE.

By Captain WILLIAM V. JUDSON,
Corps of Engineers, U. S. Army. U. S. Military Academy, 1886.

OFFICER OF ENGINEERS
1851

IN THE systematic teaching of the sciences to qualify students for the engineering profession West Point led the way during the first half century of its existence. When the Military Academy was founded it was even more true than now that our people hesitated at expenditures for purely military purposes, and proposed to employ their officers in time of peace in various useful undertakings. In the beginning, through the personal efforts of President Jefferson, who was "no great lover of military affairs, but a warm friend of science," such a teacher as Jared Mansfield was secured, and we know that Mr. Jefferson, when he signed the act establishing the Military Academy, contemplated an institution which would supply the country with engineers for civil as well as military purposes, an institution which would serve as a model for training in the practical sciences.

Our technical schools are now the admiration of the world, but West Point antedated the Rensselaer Polytechnic School by twenty-three years, and there was no third institution in the same field prior to 1847, when the Sheffield Scientific School was established. While many engineering achievements may be claimed as the immediate work of West Point graduates, we must not forget the profound influence of the Academy as an example, and of many of its graduates as teachers, which have helped to make the American civil engineer

the most capable practical man in the world to-day, and the American nation, in consequence, the envy of Europe in all that pertains to manufacture and construction.

President Gilman, in an address delivered on the occasion of the semicentennial celebration of the founding of Sheffield Scientific School, remarks:

> The opportunities, the honors, the pleasures, and the rewards of a liberal education were opened during the first half of this century to those only who had been disciplined, by the preparatory schools, in the ancient languages, and this discipline was continued through the greater part of the subsequent collegiate curriculum. To verify this remark it is only necessary to examine the catalogues of the leading colleges of the country during the first five decades of this century. * * * Spasmodic efforts were made for the founding of new courses, but virtually West Point and Troy were the only established places in this country for good technical instruction so late as 1847.

As illustrating the character and influence of her many graduates whom the Military Academy gave as teachers to the institutions which followed her, we may again quote the words of President Gilman:

> Norton (the first professor of civil engineering at Sheffield Scientific School) was an admirable teacher, well trained at West Point, painstaking, accurate, thorough, well acquainted with the progress of his favorite science, and always commanding students of ability. * * * In later days another West Pointer (Professor Trowbridge), who is said to have been the first to suggest the cantilever bridge, was distinguished for his work upon steam generators and other prime motors.

Not only their scientific attainments, but we are proud to believe the well-known and lofty standards of honor and integrity inculcated by their Alma Mater fitted graduates to play no inconsiderable part in the wonderful processes of our national growth. It is proposed to outline the story of these services in this chapter.

EXPLORATIONS.

Maps compiled in largest part from the routes pursued by graduates through previously unknown lands between the Mississippi and the Pacific first delineated the great West, showing the plains and valleys susceptible of cultivation

and the streams watering them; the mountains barring the way to communication, and the passes by which they might be traversed. Every march of a column or scouting party added to the stock of human knowledge that was to direct the movements of an unequaled immigration. Mention can be made here of important expeditions only.

In the years following 1807 our country was much involved in foreign complications. Systematic exploration of the West languished during this period, but its resumption in 1819 found an increasing body of graduates to pursue the work in a scientific manner.

Long's expedition, in the year last mentioned, set out from Pittsburg in the steamer *Western Engineer*. By way of the Ohio, Mississippi, and Missouri, the party proceeded to old Council Bluff, which served as a base of operations. By the close of 1820 the courses of the Platte, Arkansas, and Canadian rivers had been traced, their sources in the Rocky Mountains examined, and Pike's Peak had been ascended for the first time. With Long were John R. Bell ('12), J. D. Graham ('17), and W. H. Swift ('19), the last two doing most of the astronomical work.

James Allen ('29) first explored the source of the Mississippi in 1832.

Capt. B. L. E. Bonneville ('15), born in France during the Reign of Terror, was a worthy successor of Marquette and La Salle. Of adventurous and romantic temperament, he sought leave of absence and permission, at his own expense, to investigate the topography and resources of the far West. In the spring of 1832, Bonneville proceeded up the Platte and established a rendezvous upon Green River in the present State of Wyoming. Thence his parties explored Great Salt Lake, and the Green, Snake, and Salmon river countries. One detachment crossed the Sierra Nevadas, proceeded as far westward as the Sacramento, and rejoined the main body by way of the Santa Fe trail. Other parties explored the headwaters of the Yellowstone, the Big Horn range, and the Wind River Mountains.

During the winter of 1833–34, and subsequently in the summer of 1834, Captain Bonneville visited the Columbia

River, and in 1835 returned to the "States" by way of the Platte.

There is barely room in this plain story of Bonneville's travels to allude to the hardships and the dangers he encountered. Amid perils of Indian warfare and of flood and cold and hunger, most of his companions savages, he was traversing a wilderness that was literally trackless. The romance of his adventures has been preserved in the work of Washington Irving.[a] The practical results were maps which first correctly portrayed the hydrography of the region west of the Rocky Mountains.

The work of exploration went on, gradually losing something of its picturesqueness as route crossed route, but the hardships and dangers remained. W. H. Warner ('36) was killed by hostile Indians while exploring the California Mountains, and M. P. Harrison ('47) met the same fate while accompanying Marcy to the Red River country.

In the early fifties the attention of Congress was directed toward the transcontinental railroad problem. It was felt that prospect of future profit would not alone suffice to bring about the gigantic combination of capital that such an undertaking required. Nevertheless opinion was wisely formed that military, political, and economical considerations demanded the construction of one or more lines, and the Government, among other aids, extended the services of its officers, who at that time possessed almost a monopoly of the requisite engineering knowledge and training. Engaged upon the survey of routes near the forty-seventh and forty-eighth parallels, near the thirty-eighth and thirty-ninth parallels, near the forty-first, thirty-fifth, and thirty-second parallels, through the Sierra Nevada and Coast Range, and from the Sacramento to the Columbia River, were score upon score of graduates of the Military Academy. With no intention to ignore others, many of whom rendered equally or perhaps more valuable service, the names may be mentioned of a few graduates, now otherwise known to fame, who did their part in these great and systematic pioneer surveys: George B. McClellan, commander

[a] Irving. Adventures of Captain Bonneville, U. S. A., in the Rocky Mountains and the far West. N. Y. 1851. 12 mo.

of the Army of the Potomac; Henry L. Abbot, prominent in connection with our present splendid system of coast defense; Philip H. Sheridan, the hero of the Shenandoah campaign; John B. Hood, Confederate leader; Parke and Humphreys, the former a superintendent of the Military Academy, and both distinguished corps commanders. Of those graduates, bearing the sextant in one hand and the rifle in the other, not the only one giving his life for his country was Gunnison ('37), who was cruelly massacred and mutilated near Sewell Lake in 1853.

It is very interesting to-day to compare a modern railroad map of the West with the "Map of routes for a Pacific railroad" accompanying the report of the Secretary of War to the House of Representatives.[a] No further evidence is needed that graduates most intelligently blazed the way for the steam locomotive which, like a mighty shuttle, has spun the wonderful fabric of our country.

There is not space in this chapter to detail the work of Marcy ('32), who mapped the Red River country in 1852, 1853, and 1854, nor of Warren ('50), whom years of hazardous topographical studies in the Dakotas and Nebraska may have trained to see the value of Little Round Top and so save the day at Gettysburg. From the Yukon to the Rio Grande, in every extreme of climate, the work went on to an extent that may be gathered from the following paragraph in a letter addressed to the Secretary of War by General Humphreys on May 10, 1878:

> In addition to the foregoing it may be stated that the officers of Engineers and officers on engineer duty attached to the headquarters of the military divisions of the Missouri and the Pacific, at the headquarters of the military departments of Dakota, the Platte, the Missouri, Texas, California, Arizona, and the Columbia, and at the headquarters of the military district of New Mexico, together with other officers of the Army, have surveyed within the last ten years an aggregate of more than 175,000 miles of routes, lines, and marches, besides an aggregate of more than 40,000 miles of area, and the results of these surveys are mainly to be found on the maps in use by the Army and the country.

Before passing to the more exact and refined surveys undertaken by graduates, it is proper to mention the fact that

[a] Ex. Doc. 129, Thirty-third Congress, first session.

explorations are still progressing in the icy mountains of Alaska and in the matted jungles of the Philippines. No more than three years ago Herron ('95) was seeking an all-American route from Cook Inlet to the Yukon, beset by imminent peril of flood and starvation. At the same time Alstaetter ('97), captured while reconnoitering for a road, lingered a prisoner in the hands of the Filipinos.

BOUNDARY SURVEYS.

In the six great international boundary surveys which have fixed the northern and southern limits of the United States, the most refined astronomical methods have been developed and pursued by graduates of the Military Academy.

Capt. Andrew Talcott ('18), while determining the northern boundary of the State of Ohio in 1834, invented the zenith telescope and the method of determining latitude by observing the difference of meridional zenith distances of two stars on opposite sides of the zenith.[a] The Talcott method has long been recognized as the most accurate practical one for the determination of latitude.

THE LAKE SURVEY.

One of the great refined geodetic surveys of the world, inaugurated in 1841, had for its object the production of reliable charts as well for vessels navigating the Great Lakes and upper St. Lawrence River as for determining the improvements needed for the prosperity of lake commerce. This great work was substantially completed in 1885, with a total expenditure of nearly $3,000,000. The primary triangulation was of the greatest precision, so that it might serve to determine the form and dimensions of the earth. Over 6,000 miles of shore line were mapped. The triangulation embraced an area of nearly 17,000 square miles, and the hydrography covered nearly 10,000 square miles. Mainly the work of graduates, this work will stand as a monument to Cyrus B. Comstock ('55), who was long its superintending engineer. To this last-named graduate, whose conscientiousness almost

[a] See Journal of the Franklin Institute, 1838, p. 217.

reached the point of eccentricity, and whose scientific attainments have been recognized the world over, it is related that President Grant offered promotion from the rank of major to that of brigadier-general. In these days it is hard to believe that Comstock resolutely declined the honor on the ground that it belonged of right to a distinguished senior officer. It is to be regretted that Comstock never subsequently attained the rank he had so honorably declined.

THE COAST AND GEODETIC SURVEY.

While the work of determining the hydrography of our coast waters and the exact topography of our shores has never been a War Department enterprise, nevertheless it was Alexander Dallas Bache, grandson of Benjamin Franklin and a graduate of the class of 1825, who, in 1843, upon the recommendation of the principal national scientific societies, was called upon to reorganize the Survey. He served as its Superintendent for twenty-four years, and when, in 1867, the Secretary of the Treasury announced his death, he used these words:

> No man within the present generation was more widely known in the walks of practical science; none has been so closely identified with collateral service in the various public departments. * * * Under his direction that great work [the Coast Survey] has been eminent no less for its abundant results than for its high scientific character, which has won the approbation of the leading learned bodies of the world, among whom his name has long been held in honor.

THE WHEELER SURVEYS.

While on reconnoissance work in 1869 Lieut. George M. Wheeler ('66) conceived the idea of a systematic topographical survey of the area of the United States west of the one hundredth meridian. He estimated that the total cost of covering this area (1,443,360 square miles) would be $2,500,000. The work was approved by Congress and was inaugurated in 1872 under the War Department—graduates performing most of the skilled work of observation. When it is stated that detailed topographical surveys have cost $65 per square mile in Prussia and $190 per square mile in the

case of the ordnance survey of England, it can readily be understood that Lieutenant Wheeler contemplated some sacrifice of extreme accuracy and the abandonment of unnecessary detail.

When appropriations for the work ceased in 1878 nearly 350,000 square miles had been mapped at a cost of about $1.48 per square mile, and data had been obtained for the preparation of elaborate reports on mineralogy and mining, geology, botany, and the like.

* * * * * * *

Surveys of the Mississippi and Missouri rivers, for an intercontinental railway, for an isthmian canal, for many hundred works of river and harbor improvements, and for roads and military defenses, have engaged the attention of graduates from time to time, but a mere list of them would pass the bounds assigned to this chapter.

In concluding this account of the services of graduates as explorers and surveyors, it seems fitting to quote from a letter of General H. G. Wright ('41), addressed to the Secretary of War, October 29, 1878, wherein it is truthfully claimed—

> that refined methods of topographical survey were first used in the United States by officers of the Army in the performance of their varied duties under the Government; that they were among the first to apply the refined methods of geodetic surveys; that from the time the Government had territories to explore, the exploration has been mainly made by them; that a large portion of the information contained in all of the maps of the United States west of the Mississippi River is due to their labors; * * * that the officers of the War Department, from the earlier years of this century, from the days of Pike and Long, and Lewis and Clarke, and Bonneville, have borne the hardships and exposure of the preliminary examinations and surveys when the region was an unknown wilderness, and have gone on improving their surveys from time to time by more accurate methods as the improvement in instruments and means of their transportation have increased.

RAILROADS.

It is difficult to believe that as recently as 1827 there could have prevailed a discussion wherein, speaking editorially of the project of one Hale to join Boston with Connecticut by

means of a railroad, the North American Review would use the words:

> and we think Mr. Hale is perfectly right in forming his estimates on the supposition that the use of horsepower is best adapted to our circumstances. It certainly is so at present, and we can foresee no change or improvement which shall reverse this condition.

It is much easier to believe the assertion that he who first conceived the idea of a railroad, a Frenchman of the seventeenth century, should have cried out in the madhouse in which he was incarcerated, "I am not mad! I have made an invention!"

The railroad was born in England with the successful opening of the Stockton and Darlington line by Stephenson in 1825. A fever for railroads immediately attacked this country. Of men competent through experience to locate and construct them of course there were none. Of men competent through education there were a few, and these were almost all graduates of the Military Academy, or their associates in the Army. In accordance with a liberal policy, the Government lent its officers for this purpose, and if the phenomenal growth of our country may in a great degree be attributed to railroads, then are graduates of West Point entitled to much credit for that growth, for it was due to their skill and diligence that in the second quarter of the last century railroads sprang into existence so rapidly and so extensively throughout the country.

The Baltimore and Ohio was the earliest important railroad enterprise undertaken in the United States. S. H. Long, William Howard, and William Gibbs McNeill, all officers of Engineers, and the latter a graduate of the class of 1817, were chosen as a board to select a proper route to the Ohio. To quote from good authority:[a]

> Their report is elaborate and able, and is probably the most interesting document of its day on the subject of railways in America.

Engaged in the construction of the Baltimore and Ohio, besides McNeill, were Joshua Barney ('20), Isaac Trimble ('22), Richard E. Haggard ('24), William Cook ('22), Walter Gwynn ('22), John Dillahunty ('24), and George W. Whistler

[a] Van Nostrand's Engineering Magazine, v. 7, p. 502.

('19). Upon the rails, definitely located by McNeill, ran (for the first time in America) a steam locomotive.

In 1828 the railroad company sent to England a commission of three, including McNeill and Whistler, who were cordially received by such men as Stephenson and Telford, and learned what they could from the railroad builders of that country.

McNeill and Whistler soon forged to the front of the civil engineering profession.

These two engineers exercised an influence throughout the country for many years, much greater than any others. Indeed, there are few works of importance undertaken at that time in connection with which their names do not appear.[a]

Before McNeill resigned in 1837 he had surveyed the summit division of the Chesapeake and Ohio Canal, and had acted as chief engineer of the Baltimore and Susquehanna, Paterson and Hudson River, Boston and Providence, Providence and Stonington, Taunton and New Bedford, Fayetteville and Yadkin, Long Island, and other railroads scattered from New England to Florida and Alabama. After he resigned, for the remaining sixteen years of his life, he acted as chief or consulting engineer upon many railroad and other public enterprises in the United States and Cuba, completing the Western Railroad of Massachusetts, planning and practically constructing the first large dry docks at the Brooklyn Navy-Yard, and acting as president of the Chesapeake and Ohio Canal.

Probably greater than McNeill was his junior, Whistler. The two were associated in the construction of many railroads, including the Baltimore and Susquehanna (now Northern Central), the Paterson and Hudson (now Erie), the Western of Massachusetts (now Boston and Albany), and the Providence and Stonington. It was upon Whistler that most of the details devolved.

These pioneers were not simply "following the best practice." They were creating methods and inventing means to apply them. At Lowell, Mass., in 1836, Whistler was

[a] Life and Works of George W. Whistler, by George L. Vose, president Boston Society of Civil Engineers.

personally designing and constructing locomotives that were preferred to all others in this country. He had even to invent the locomotive whistle, as it is said he had previously invented the method of showing elevations upon topographic maps by means of contours.

Conditions in the United States varied extremely from conditions in England. The former was a country of magnificent distances and a meager population. Railroads were often built to develop the country rather than to care for an established traffic. The first study of the engineer was economy in first cost, and the second study was economy in operation. The use of extreme grades and extreme curvature reduced the items of excavation and embankment. The line often departed many miles from its natural location to seek an easy river crossing or a low pass through the mountains. Steam excavators and other labor-saving machinery were demanded and produced. The character of the line compelled improvements in the rolling stock.

In 1835 the Russian Government determined to build a line from St. Petersburg to Moscow. A Russian commissioner visited the countries of Europe and the United States and pronounced the American systems of construction and operation to be the most fitted to the needs of Russia. Later a committee of Russian engineers reported that "of all persons with whom they had communicated, no one had given them such full and satisfactory information upon all points, or had so impressed them as possessing extraordinary ability, as Major Whistler." Whistler, in accepting a very flattering offer from St. Petersburg in 1842, became the precursor of that American invasion of brains, products, and methods which is now exciting the fear as well as the admiration of European countries. Whistler's title was consulting engineer, but the road and its equipment were planned by him in detail. He had to overcome not merely physical obstacles, but also the natural opposition of his jealous associates. His report upon the gauge to be selected has been pronounced "one of the finest models of any engineering document ever written." It prevented the adoption of a wide gauge, which afterwards and in other locations has caused untold expense

and trouble. Plans were completed in 1843, and the manufacture of rolling stock began in 1844 under contract between the Russian Government and the American firm of which Ross Winans was a well-known member.

In the building of engines all parts were made interchangeable, a feature which beyond all other things has since made American machinery supreme.

The freight cars were 30 feet long and supported upon 8 truck wheels. If this practice had been universally adopted upon the Continent and in England, amounts almost fabulous would have been saved in cost of transportation during the past sixty years. To-day the English railroad companies are investigating whether they may not yet, with economy, throw aside their little "goods-wagons" and face the immediate losses in rolling stock, terminal investments, etc.

Having so great an engineer in their midst, the Russians utilized his judgment in many undertakings, such as bridging the Neva, constructing docks and fortifications at Cronstadt, etc.

Worn out by extraordinary labors, Whistler died in 1849. At this time his railroad was nearly completed, and his plans were retained to the smallest detail. Another graduate of West Point, T. S. Brown ('25), was invited to succeed him.

"As an engineer, Whistler's works speak for him. He was eminently a practical man, remarkable for steadiness of judgment and for sound business sense. Whatever he did was so well done that he was naturally followed as a model by those who were seeking a high standard. Others may have excelled in extraordinary boldness or in some remarkable specialty; but in all that rounds out the perfect engineer, whether natural characteristics, professional training, or the well-digested results of long and valuable experience, we look in vain for his superior."[a]

If McNeill and Whistler were the greatest American railroad engineers of their generation, there were many other graduates who approached them closely. In a hasty inspection of the records I have been able to count 49 graduates

[a] Life and Works of George W. Whistler, by George L. Vose.

who have been chief engineers and 22 who have been presidents of railroads. Many have acted in one of these capacities upon several roads, and the list would be long, indeed, of those who have served as resident or assistant engineers.

The Central Railroad of Georgia in 1859 appropriated $5,000 for the erection of a monument to William H. Gordon ('15), who, as president of the company, had devoted his life to its upbuilding with a success that covered his State with a network of railroads. Of this same railroad and other important lines in the South, E. P. Alexander ('57), the distinguished Confederate artillery commander, was later president.

George W. Cass ('32) was a great organizer and administrator of railroads. He was president of the Pittsburgh, Fort Wayne and Chicago and of the Northern Pacific railways. He was also the first president of the Adams Express Company, the pioneer in that branch of transportation.

Thompson S. Brown ('25), before he was engaged by the Russian Government to complete the work of Whistler, built the Lake Shore and parts of the Erie Railroad.

The Mobile and Ohio was largely constructed by graduates, among them Andrew Talcott ('18), John Childe ('27), and O. McK. Mitchell ('29). Mitchell was better known later as a distinguished astronomer, author, and inventor, and as the director of the Cincinnati Observatory.

Daniel Tyler ('19), who in 1835 erected the first coke hot-blast furnace in America, was a very eminent engineer, with a special gift for the upbuilding of wrecked or failing corporations. His work of construction and reconstruction was scattered from Maine to Alabama. He was president or chief engineer of many railroads, including the Cumberland Valley and the Mobile and Montgomery.

The first railroad in Cuba was built by Benjamin H. Wright ('22).

Talcott built the first railroad in Mexico, and Albert M. Lee ('31) and R. A. Petrikin ('65) added hundreds of miles to the lines of that country.

The Panama Railroad has been largely built and operated by graduates, among them William C. Young ('22), A. J. Center ('27), William H. Sidell ('33), and John Newton ('42).

Before the civil war George B. McClellan was chief engineer of the Illinois Central and president of the St. Louis and Cincinnati; Halleck was president of the Pacific and Atlantic; Abraham Buford was president of the Richmond and Danville, and Lloyd Tilghman, afterward killed at the head of a Confederate division, was chief engineer of several southern railroads.

After the civil war Braxton Bragg ('37) was chief engineer of the Gulf, Colorado and Santa Fe; Burnside ('47) was president of several western roads; Horace Porter ('60), now ambassador to France, was president of the West Shore, and James H. Wilson ('60) was president of the New York and New England.

During the civil war the highly efficient chief of construction and transportation on military railroads was Herman Haupt, of the class of '35.

The oldest living graduate to-day is Thomas A. Morris ('34), who built many of the earlier roads in his adopted State of Indiana, and administered others as president or receiver.

Unfortunately the limits of this chapter do not permit accounts of the work of Swift ('19), Joshua Barney ('20), Cook ('22), Gwynn ('22), Isaac Trimble ('22), James Barnes ('29); these last, with those mentioned before, constituted a large and important part of the body of civil engineers of their day. I shall be satisfied should it appear that the pioneer railroad work in our country has reflected great credit upon our Alma Mater, who furnished so many of her sons for skillful, honorable, and important services.

MUNICIPAL ENGINEERING.

Little has been written of graduates as municipal engineers, but the record is a splendid one.

The work of George S. Greene ('23) in connection with the Croton water supply of New York City is well known. The same distinguished engineer was employed by the city of New York to report on plans for elevated railway structures; was chief engineer of public works of the city of Washington to devise a sewerage system for that city, and was consulting

engineer upon many important municipal enterprises throughout the country. Greene served his country well in war as well as in peace, for it was his brigade that saved the Union right on the second day of Gettysburg.

The Philadelphia water department was reorganized (1883 to 1886) by William Ludlow ('64). Finding corruption and carelessness the rule, and a plant inadequate and in a state of deterioration, Ludlow inaugurated many reforms and vastly extended the service of his department. His administration has been praised by all lovers of honesty and efficiency in municipal affairs.

Egbert L. Viele ('47) was engineer in chief of Central Park, New York, and of Prospect Park, Brooklyn. General Viele was a recognized authority in matters of municipal engineering.

The city of Washington illustrates in many of its public works and in the success of its present form of government the ability of graduates to handle with fidelity and skill all varieties of municipal works.

Montgomery C. Meigs ('36), nearly fifty years ago, located a system of water supply admitting of easy expansion to care for the population of a hundred years hence. Meigs was much criticized at the time for building upon so large a scale, but the community is now congratulating itself upon his large ideas. The Washington Aqueduct crosses two creeks flowing through deep ravines, one by means of Cabin John Bridge, whose magnificent span of 228 feet was for nearly fifty years the maximum for masonry arches, and the other by means of arches formed of the iron water pipes themselves, which are utilized to support a bridge for wagon traffic. The methods used in crossing these creeks well illustrate the daring originality of the constructor. Meigs was one of the greatest builders and organizers of work of his generation, and was a lovable man and a great student besides. Before he was chosen for the most important post of Quartermaster-General during the civil war, he had been connected with other great works that are mentioned elsewhere in this chapter.

In 1878 Congress placed the executive and a part of the

legislative functions of government of the District of Columbia in the hands of a board of three Commissioners, one of whom is, by law, an engineer officer of the Army. The first Engineer Commissioner was Twining ('63), whom people called a "benevolent despot" and regarded as an ideal municipal executive. The Commissioners are supposedly coordinate, but the Engineer Commissioner is the principal executive officer of the Board. With two engineer officers as principal assistants he is charged with the construction and repair of streets and bridges, water distribution, sewage disposal, and the like. It is a matter of common remark that Washington has the best government of any city in the world. Much credit for this is due to graduates.

In the broadest sense of the phrase F. V. Greene ('70) and Eugene Griffin ('75) have been great municipal engineers, each along an important special line. Greene made a name for himself by writing an account of the Turko-Russian war that has become standard the world over. He resigned from the Corps of Engineers in 1887 to become chief engineer, and later chief executive, of the Barber Asphalt Paving Company. Greene compelled a general recognition of the superior advantages of asphalt paving for city streets, but not before he had perfected the materials and methods of laying, adapting both to the severe climatic conditions of our American cities.

Griffin, while assistant to the Engineer Commissioner of the District of Columbia, in 1888, wrote an epoch-making report upon the subject of the propulsion of city street cars. Published by the Government, this report was circulated everywhere, and added great impetus to the building of electric street railways throughout the country. As a result of his studies along these lines Griffin is to-day the general manager, as he has been largely the creator, of the great General Electric Company, the operations of which have helped greatly to swell the total of manufactured exports from the United States to foreign countries and to create that marvelous balance of trade that has alarmed European economists.

In our insular possessions, since 1898, a vast amount of municipal engineering and the like has fallen upon graduates. The whole story of this work would—nay, probably

will—fill volumes. It is most satisfactory that our officers have everywhere demonstrated to their countrymen a high capacity for honest and skillful direction of work.

If as Americans we congratulate ourselves upon the noble and unselfish policy which was recently consummated in the evacuation of Cuba, we find no less cause for satisfaction in the details of our four years of stewardship; so common upon the pages of our magazines and in the columns of our newspapers is the comparison between Cuba of yesterday and Cuba of to-day that I hesitate to introduce so trite a subject. When Ludlow was appointed governor of Habana that city was the plague spot of America; streets and buildings were festering with corruption, and the noisome odors afflicting the senses were but fit accompaniments of political and administrative conditions. As at Habana, so it was at Santiago and the other cities.

Under the immediate direction of Ludlow ('64), Black ('77), Geary ('74), Barden ('94), Hanna ('97), Hamilton ('91), and many other graduates the work of renovation and improvement was vigorously prosecuted. Sewers were planned and constructed; streets cleaned and paved; parks, waterworks, roads, and bridges constructed, and public buildings, including hospitals and prisons, were made sanitary; but more far-reaching than all this, a people being trained for independent national existence was afforded an object lesson in faithful public service that may be the salvation of Cuba.

Similar duties have fallen to graduates in Porto Rico and the Philippines, but the reader must not be wearied with more details.

PUBLIC BUILDINGS, ETC.

In Washington stand many testimonials to the skill of graduates as builders of beautiful and enduring structures.

The wings and Dome of the Capitol itself were built under the superintendence of Meigs ('36), of Washington Aqueduct fame. A great architect, Thomas W. Walter, was associated with Meigs in this work, but the beauty of the structure was largely due to Meigs, and all the details of what was then difficult construction were of his devising.

In connection with this work Meigs was the first to turn

stone columns in a lathe, notwithstanding predictions of failure and the opposition of "practical" stonecutters.

Under the auspices of the Washington National Monument Association there was begun in 1848, with funds derived from public subscription, the magnificent obelisk that commemorates the life and work of George Washington.

Incredible as it may appear the original foundation consisted of a rubble masonry footing, laid in lime mortar, 80 feet square at the base, 58 feet 6 inches square at the top, 23 feet 4 inches in thickness, set only 7 feet 8 inches below the original surface of the sandy clay alluvium soil.

On the top of this footing, 55 feet 1½ inches square at the base, rested the shaft, with a white marble facing in 2-foot courses and a rubble masonry backing of blue gneiss rock. In 1856 the shaft had reached a height of 156 feet 4⅛ inches, when, owing to lack of funds and other unfavorable conditions, work was suspended. The weight of the incomplete structure was 35,000 tons, or nearly 5½ tons to the square foot. It seems apparent to us now that if a becoming liberality among the people had enabled the Monument Association to complete its work upon the foundation it had established something startling must have happened, for the weight per square foot would have been doubled. Indeed the soil had already been loaded to the limit of prudence, if not of safety.

In 1876 Congress assumed the task of completing the work. In 1878 the work was placed in charge of Thomas Lincoln Casey ('52), who was confronted by the then unique problem of building a suitable foundation under an existing heavy structure 156 feet in height.

Although Casey's solution of this problem is well known to all civil engineers, yet detailed accounts of it are hard to discover, a fact that may justify the following description in the words of Bernard Greene, who was Casey's able assistant and lifelong friend:

> A much firmer stratum of gravel, sand, and small bowlders existed at 13 feet 6 inches below the old foundation, which was underpinned with Portland cement concrete blocks 4 feet wide, 13 feet 6 inches deep, 41 feet 3 inches long, 18 feet of which extended underneath. These were

put in singly or in pairs, one on each opposite side, as the tendency of the monument to lean toward the respective cuts appeared, and this was constant until a number of the blocks has been inserted. Frequent level observations were kept up on brass benches at the four corners of the shaft, which showed an extreme sensitiveness to the least disturbance of the earth underneath the old foundation. Finally, the underpinning was completed, leaving, as will be noted, a block of untouched earth 44 feet square in the center. Jackscrews were used freely to retain the side pressure of the earth in the trenches, and the concrete was forced up under the old footing masonry with a swinging horizontal battering-ram timber. Then the old rubblework was quarried out around the sides in sections of about 10 feet wide, and concrete buttresses were inserted 2 to 3 feet under the edge of the shaft and extending well out onto the projecting underpinning. When all were in they formed a continuous buttress all around. In this way 70 per cent of the original earth bed was cut away and substitued by the concrete underpinning, 51 per cent of the rubble footing was torn out, and 48 per cent of the bed area of the shaft itself undermined and filled with concrete.

During this operation the total settlement of the structure was 2½ inches, the greatest difference between any two corners being one-half inch, which nearly corrected an original inclination of about 1½ inches in the old shaft at 156 feet high.

This accomplished, the continuation of the shaft was resumed on August 7, 1880, and the capstone set on December 6, 1884. The facing is marble, in 2-foot courses of 2-foot bed, in alternate leaders and stretchers, backed up with cut granite, all laid in Portland cement mortar.

The total weight of the monument, including the foundation and interior ironwork is 90,854 tons, loading the foundation not over 10 tons per foot in the center, nor less than 3½ tons at the outer edges of the foundation. The construction of the shaft produced a further settlement of the foundation, making a total of about 4⅓ inches, but no material change has occurred since.

Neither winds nor changes of temperature produce any appreciable effects on the monument. The pressure of wind on one flat face of the structure requisite to overturn it is 200 pounds per square foot, and then it would break off at the junction of the old and new sections of the shaft, leaving the lower one standing.

The dimensions of the monument are: Total height, 555 feet 5⅛ inches; shaft proper, 500 feet 5⅛ inches; base, 55 feet 1½ inches; top, 34 feet 5½ inches; pyramidion, 55 feet high; interior well, 25 feet square up to 150 feet, splaying out to 31 feet 5½ inches at 160 feet, and thus continuing to top of shaft; batter of exterior, one-fourth inch to 1 foot; thickness of walls at base, 15 feet; at top, 1 foot 6 inches; foundation, 126 feet 6 inches square and 36 feet 10 inches deep.

As the original was built 15 feet 8 inches above the then natural surface and subsequently buried by artificially raising the mound about the Monument, the total height of structure actually built is 555 feet 5⅛ inches plus 15 feet 8 inches = 571 feet 1⅛ inches, but the present visible obelisk alone is still the highest masonry structure built by man by some 20 feet.

From 1877 to 1888 Casey was in charge of construction of the State, War, and Navy Department building. For many years this was the largest and perhaps the most imposing office building in the world, and to-day remains a fit neighbor to the beautiful White House.

The construction of the Library of Congress occupied Casey during the latter years of his life. This great edifice was completed within the limits of time and money set forth in the estimate, and promises long to remain the most commodious, the most convenient, and the handsomest library building in the world. The plan is rectangular, with four interior courts and a central octagonal rotunda 140 feet in diameter containing the main reading room. The exterior of the building is 470 feet long by 340 feet wide. Between the courts are three special book stacks, each nine tiers high above the cellar, capable of shelving 1,800,000 volumes, while other convenient portions of the building may be shelved for as many more. The book stacks are wholly of masonry, iron, marble, and plate glass. Excepting in three rooms, all door and window frames, casings, and baseboards are of cast-iron or marble, and the floors generally are surfaced with marble or mosaics. The exterior is of Concord granite. Two thousand two hundred windows give ample light by day, and at night the building is brilliantly illuminated from its own power plant. Pneumatic tubes and endless sprocket chains connect the delivery desk with the main book stacks, and an endless chain cable with auxiliary pneumatic tubes passes through a tunnel to the Capitol.

In a work of such magnitude all details can not be the care of the master mind; but as Casey, by special act of Congress, was given the greatest latitude and responsibility, his would have been the blame if the whole conception had been faulty or the details inadequate. Casey was a man upon whom

Congress came to rely absolutely. His estimates and his opinions were accepted without question, and he was very proud that there was never a disappointment. Casey was a great man, of wonderful integrity and administrative capacity. His work has added materially to the fame of the Military Academy.

LIGHT-HOUSES.

In 1851, recognizing the shortcomings and general inefficiency of the Light-house Service prior to that date, Congress caused the creation of a Board whose duty it was to investigate conditions then existing and to suggest appropriate legislation. This Board consisted of two naval officers, and three others, two of whom, Totten ('05) and Bache ('25), were graduates of West Point.

As a result of the studies and recommendations of this Board, an act was passed creating the permanent Light-house Board, which has, since 1852, been charged with all matters relating to the location, construction, repair, and operation of light-houses and similar aids to navigation throughout the United States. Of this Board, which consists of two naval officers, two officers of the Corps of Engineers of the Army, and two civilians of high scientific attainments, together with a naval and an engineer secretary, many graduates have been members, often constituting a full half of the Board. All plans, drawings, specifications, and projects for construction are proposed by the engineer secretary of the Board, or by other engineer officers. Each of the 16 light-house districts into which the country is divided is, for purposes of construction and maintenance, in immediate charge of an engineer officer. Before the organization of the Light-house Board the construction of a number of light-houses presenting special difficulties was intrusted to the topographical engineers of the Army.

The construction of light-houses, by reason of the almost insurmountable difficulties sometimes imposed by the sea and because of the beneficent service they render to mankind, possesses a romantic as well as a strictly technical engineering interest. Perhaps the best known English engineers are

men like Smeaton and the Stevensons, who risked reputation and sometimes life itself to found among the waves structures that would bear aloft their warning torches through every jealous fury of the elements.

Naturally enough, upon the coasts of the United States, built by our graduates, are many light-house structures of equal interest with, if less well known than, Skerryvore or Eddystone.

The first iron skeleton light-house structure in the United States was a beacon, designed and erected by W. H. Swift ('19), at the entrance to Black Rock Harbor, Connecticut, in 1847. In this locality three masonry beacons, costing $21,000 in all, were successively demolished within a period of twelve years. Swift's beacon, costing but $4,600, is still in service.

In 1848 Hartman Bache ('18) began in Delaware Bay the construction of Brandywine Shoal light-house, the first in the United States to use screw piles.

Proper foundation for heavy masonry structures is often lacking, especially upon our southern coasts, and the result has been numerous improvements in the skeleton form of construction and its adoption in connection with iron or steel piles, screw piles, plates, grillage, or other foundation for a great number of United States structures upon sites both submerged and dry. Of this type is Sombrero Key light-house, built by George G. Meade ('35) a short six years before he was to defeat Lee's army at Gettysburg. Sombrero light is situated 50 miles east of Key West. Standing in 8 feet of water it shows a light 140 feet above mean low tide. Twelve-inch wrought-iron foundation piles rest their shoulders centrally upon cast-iron disks 8 feet in diameter, penetrating the coral rock 10 feet below the plates. The piles stand at the angles and center of an octagon 56 feet across. The well braced frame rises pyramidal in shape, tapering to a diameter of 15 feet at the top. The entire structure cost $120,000 and still stands in good condition.

Another skeleton tower light is that on Fowey Rocks, at the extreme northern point of the Florida reefs, completed in 1878.

The light-houses that have been previously described are of little weight, but oppose no great surface to the action of

wind or waves, and may be constructed with comparative rapidity. Many of the great sea-rock light-houses of the world, particularly those exposed to great wave action, are constructed of the best masonry that man can devise, and given great weight to resist the stress of storm waves.

Of this latter type is the light-house now standing on Minots Ledge. The site was previously occupied by an iron skeleton tower that was carried away, with both keepers, in the great storm of 1851.

Engaged in the erection of this light-house which, in the words of General Barnard, "ranks by the engineering difficulties surrounding its erection, and by the skill and science shown in its construction, among the chief of the great sea-rock light-houses of the world," were J. G. Totten ('05), who made the plans, and B. S. Alexander ('42), who built the structure. The only authentic account of this great work is found in a modest memoir prepared by Alexander, from which the following is quoted:[a]

* * * We could not land, even in the summer season, for weeks together; and when we could effect a landing, a part of the ledge was at all times under water, and the remainder only bare for one or two hours at low water of spring tides. The space was contracted, and the sea broke with such violence during easterly weather that no cofferdam was possible. How were we to begin? What should be the process? Where were the workmen to live, and what were they to do while waiting for an opportunity to land on the ledge? * * *

In the year 1855 we worked on the rock one hundred and thirty hours. * * *

In 1856 we worked on the rock one hundred and fifty-seven hours. * * *

On the 19th of January, 1857, the bark *New Empire*, loaded with cotton, was thrown against our scaffold during a violent northeast gale, and swept it from the rock, breaking off the iron posts very much as those of the iron light-house had broken when it was carried away, and shattering the top of the rock in some places, so that a portion of our labor during the preceding year had to be done over again.

1857 was a very unfavorable season for work; the whole working time on the ledge being only one hundred and thirty hours. Nevertheless, the foundation pit was nearly completed and four stones of the foundation were laid.

[a] Trans. American Society of Civil Engineers, Vol. VIII, p. 88.

1858 was a much more favorable season. The foundation was finished, and the masonry of the tower was carried up to the sixth course (inclusive). * * *

We worked on the rock this year two hundred and eight hours.

In 1859 the masonry of the tower was carried up to the top of the thirty-second course, being 62 feet above low water.

Working time on the tower this year, three hundred and seventy-seven hours.

The light-house was completed in 1860. The last stone was laid on the 29th day of June, which was just five years, lacking one day, from the time the workmen landed on the ledge.

No life was lost in building this light-house, nor was any person seriously injured.

When this work was completed there remained unexpended $30,000 of the original appropriation. The Government, in the interest of science, proposed to devote this sum to a complete account of the work, but the civil war came on before anything of the kind could be done, and perhaps designer and builder have secured less fame than their great achievement warranted.

Another sea-rock light-house of great engineering interest is founded upon Spectacle Reef, at the northern end of Lake Huron. The fetch of the waves from a southerly direction is 170 miles. In winter heavy ice flows are borne against the structure by strong currents, and often the ice piles up from 30 to 40 feet high, forcing the keepers to cut their way to the entrance in the spring when the light is to be reestablished. As at Minots Ledge, the main difficulty lay in the preparation of the foundation. The focal plane is 97¼ feet above the water. The cost was $375,000. The crib and cofferdam above described were designed by W. F. Reynolds ('43), and the light-house structure was designed and built by Orlando M. Poe ('56), who was Sherman's chief engineer in his march to the sea.

On Stannards Rock, 28 miles from shore in Lake Superior, stands a light-house very similar to that on Spectacle Reef.

Both of these structures are specimens of monolithic rock masonry that can not, perhaps, be equaled the world over.

Another light-house illustrating in its construction the difficulties often confronting the light-house engineer is

Tillamook Rock, about 20 miles south of the mouth of the Columbia River, on the coast of Oregon.

The site was a precipitous rock, much frequented by sea lions, but untouched by the foot of man, for the wet and slippery slopes were continually washed by the great waves of the Pacific. The designer and builder of this light-house was G. L. Gillespie ('62). The first attempt at landing to effect a survey of the rock was by a most capable man, one John Trewavas, who had at one time been employed in the construction of the great Wolf Rock light, in England. Trewavas succeeding in reaching the eastern slope of the rock when he slipped, was dragged down by a receding wave, and his body was never recovered. With great difficulty and danger a few men were landed more than a month later, and communication was established with the attending vessel by means of a cable attached to a mast of the latter and to a projecting ledge of rock. Men were now transported along the cable in a breeches buoy, but the rocking of the vessel introduced such violent motions upward and downward that at least one traveler refused to make the return journey and spent the many remaining years of his life on Tillamook. This structure is one of the most exposed in the world. Despite many perilous incidents it was completed in the remarkably short space of sixteen months, and at a cost of but $124,000.

Fourteen-Foot Bank light, between the capes of the Delaware, and 20 miles from the nearest harbor, is founded upon a caisson sunk 23 feet into a submerged sand shoal by the pneumatic process.

Race Rock light, lying off the southwest point of Fishers Island, is founded upon a submerged bed of bowlders compacted with gravel and sand, in depths of 12 to 15 feet of water. The tide ebbs and flows with great violence, and waves from the Atlantic find no barrier save Block Island. To solve the problem of construction, a riprap breakwater was first built around the site. With the aid of divers the foundation was then built up of concrete, in stepped layers, each layer being confined by bands of sheet iron.

In our light-house service for more than fifty years none but graduates have had the responsible charge of construction. The annual expenditures of the Light-House Board have increased gradually from about $700,000, in 1852, to over $4,000,000 in 1900, while the number of lights (exclusive of buoys, port lights, and light-ships) has meantime increased from about 300 to 1,243. In 1900, 17 engineer officers of the Army, all graduates of West Point, were connected with this service.

It is to the credit of West Point that the most difficult engineering and administrative problems have been ably solved as they have arisen; no taint of corruption has grown into the service; and an adequate and most efficient system of lights has been established for our enormous coastwise and lake traffic.

RIVER AND HARBOR IMPROVEMENTS.

In the early days of the Republic there was much animated debate upon the constitutional right of the Federal Government to appropriate for internal improvements. The first need of the country was for roads, and in 1806 President Jefferson appointed commissioners to lay out the Cumberland or "National" road, a work for which Congress appropriated in all nearly $7,000,000 and which engaged the services of many graduates of the Military Academy. In 1817, mainly through the efforts of Calhoun, Congress passed a bill proposing to expend the bonus and dividends derived from the national bank in "constructing roads and canals and improving the navigation of water courses." Upon constitutional grounds this bill was vetoed by President Madison, who stated, nevertheless, that he was "not unaware of the great importance of roads and canals and the improved navigation of water courses, and that a power in the National Legislature to provide for them might be exercised with signal advantage to the general prosperity."

The people were not satisfied with this action. Under the leadership of Clay and his friends, in 1818, the House of Representatives passed a resolution declaring that the Federal Government had the power which three successive

Presidents denied. Although Monroe's views upon this subject so far coincided with Madison's that he vetoed a bill for the repair of the National road, yet the general demand for internal improvements was so great that practically the first appropriations for rivers and harbors were made during the Administration of Monroe, and a President was chosen to succeed him who was committed to such appropriations.

In his inaugural address President John Quincy Adams in one and the same sentence adheres to policies "to provide and sustain a school of military science" and "to proceed in the great system of internal improvements within the limits of the constitutional power of the Union."

In his first annual message President Adams used these words:

> The Military Academy at West Point, under the restrictions of a severe but paternal superintendence, recommends itself more and more to the patronage of the nation, and the number of meritorious officers which it forms and introduces to the public service furnishes the means of multiplying the undertakings of public improvements to which their acquirements at that institution are peculiarly adapted.

If there is a tendency on the part of any graduate to depreciate the civil work of a number of his associates and to believe that strictly military matters should monopolize the attention of all, let him think what support the Academy drew through a long and critical period from the sentiment expressed above.

Perhaps the average citizen, whether or not he be a graduate of West Point, has informed himself upon the subject of river and harbor improvement, largely through the perusal of editorials denunciatory of governmental extravagance. There has been little effort systematically to describe the vast extent and almost inestimable value of the improvements already made or now underway.

Before improvement many of our coast harbors were unsuited even to the light-draft vessels and relatively small commerce of fifty or seventy years ago.

At Portland, Me., but 8 feet draft could be carried to the inner harbor, and along the wharf front vessels were much exposed to wave action.

At Boston 16 feet was the ruling depth and the channels were narrow and tortuous.

At New York there was generally 23 feet off Sandy Hook, but the East River entrance, obstructed by rocky shoals and violent currents, was precarious in the extreme.

Philadelphia and Baltimore were good harbors in the early days, each with 17-foot channels, but at Wilmington, N. C., Charleston, and Savannah the depths varied between 9 and 12 feet. Pensacola with 19 feet and New Orleans with 14 feet were long in satisfactory condition, but Mobile and Galveston, with 5 and 9 foot channels, respectively, were much hampered in their business.

Upon the Pacific coast were but few natural harbors. Among them, however, were the magnificent Golden Gate, Puget Sound, and the Columbia River.

Upon the Great Lakes there was a singular absence of harbors except for the smallest vessels. With very few exceptions existing harbors were the mouths of rivers or creeks, which were obstructed by bars showing but from 2 to 4 foot depths of water. There was an 11-foot channel connecting Lakes Erie and Huron, but no navigation was possible between Lakes Superior and Huron.

Many of our great rivers were indeed in many respects as suitable for navigation as now. Before the forests were cut and the banks cultivated, water falling as rain was held by the roots of trees and undergrowth, so that it entered the streams gradually and was not surcharged with silt from plowed fields. The banks were in some degree protected from erosion by rank growths of vegetation. Under such circumstances the rivers did not reach the present extremes either of high or of low water. But the Ohio was originally interrupted at low stages by the falls opposite Louisville, Ky., and the Mississippi by the Des Moines Rapids, near Keokuk, and by the Rock Island Rapids, near the town of the same name.

For the improvement or construction of waterways there has been appropriated in all approximately $424,000,000. Of this amount very nearly $392,000,000 had been expended on June 30, 1902, and of this amount approximately

$383,000,000 was under the direct supervision and in accordance with the plans of graduates of the Military Academy, mostly of the Corps of Engineers.

The following table shows the average annual appropriation for river and harbor work for each decade since 1820, and illustrates the growing magnitude of the work:

1820 to 1830	$353, 163. 24
1830 to 1840	817, 200. 94
1840 to 1850	137, 147. 47
1850 to 1860	331, 220. 06
1860 to 1870	1, 306, 680. 27
1870 to 1880	6, 260, 759. 02
1880 to 1890	9, 487, 177. 81
1890 to 1902 [a]	19, 659, 298. 17

While absolutely the increase has been great, yet Mr. Theodore E. Burton, the present very able chairman of the House Committee on Rivers and Harbors, recently showed that since 1879 the rate of increase for rivers and harbors had been less than for the support of any one of six other important departments of the Government.

Let us see in a general way what these large appropriations have accomplished.

The average available depth at fourteen of our most important Atlantic and Gulf harbors, including Portland, Boston, Providence, New York (both entrances), Philadelphia, Baltimore, Norfolk, Wilmington, Charleston, Savannah, Pensacola, Mobile, New Orleans, and Galveston has been increased from 12.4 feet to 25.1 feet.

Upon the Pacific the destruction of San Diego Harbor has been prevented by the diversion of a river; Los Angeles has been provided with a harbor at Wilmington, and soon the great San Pedro breakwater will furnish a protected area of deep water suited for a great commerce with the East. The channel to Oakland, on the eastern side of San Francisco

[a] The last period has been extended to include the elapsed portion of the current year. The average for this period would be increased about $100,000 if the total expenditures for 1902 under certain permanent appropriations could be included. On the other hand, the average for this period is unduly large, inasmuch as the two river and harbor acts carrying the largest totals passed in 1890 and 1902. It is probable that the next river and harbor bill will not be reported before 1904, although approximately $38,586,160 may be appropriated within the next four years in deficiency and sundry civil acts to cover work which the last river and harbor act authorized. Of course most of the $26,521,442 appropriated under the last act, together with other balances from previous acts, is still unexpended

Bay, has been deepened from 2 feet to 20 feet, permitting the establishment there of great railway terminals. Protected harbors have been formed where practically none existed at Humboldt Bay, California, and Coos Bay, Oregon, with channels 28 and 20 feet deep, respectively.

As to our rivers, the Hudson has been improved to a depth of 12 feet as far up as Troy. Originally there was but 4 feet between Troy and Albany, and but 7½ feet between Albany and New Baltimore.

A canal with locks has been built around the Falls of the Ohio at Louisville. The Davis Island lock and dam, 5½ miles below Pittsburg, form a commodious harbor for that city. A start has been made upon a system of locks and movable dams designed to afford a 6-foot low-water channel throughout the course of the Ohio.

Upon the Mississippi the Des Moines Rapids have been overcome by means of a canal with locks, and the Rock Island Rapids by means of wing dams and extensive rock excavation. A great levee system has been built to protect from floods the low land adjacent to the Mississippi in its lower courses, and a vastly improved and reliable channel has been obtained for nearly a thousand miles below St. Paul.

Upon the Columbia River the canal and locks at the Cascades permit steamers drawing 8 feet to ascend to The Dalles, about 210 miles from the Pacific.

The James River below Richmond has been deepened from 7 feet to 16½ feet.

Many of our rivers have been maintained in a navigable condition by the annual removal of snags, and many works not mentioned above have improved our rivers, to the great advantage of commerce.

It may be admitted frankly that the changed conditions of commerce incident to the construction and reduced cost of operation of railways has diminished in some cases (and for the present) the value of a light-draft navigation either by river or canal; that the clearing of the banks and adjacent areas, with resulting influx of sediment and increased range from high to low water, has operated against the improvement

of a number of alluvial streams, and that a thorough improvement of some rivers has been sought with insufficient means.

Upon the Great Lakes there have been wonderful accomplishments.

I have prepared a table contrasting the original with the present condition of 41 important lake harbors, and it is to be regretted that the result can be presented here only as a summary. The average available depth of channel to or in 37 of these harbors was originally 2.1 feet. To-day it is 17.8 feet. At 15 important localities extensive breakwaters have been built to form harbors where none existed, or to add to the capacity of harbors formed in the mouths of creeks and rivers.

A great through waterway has been created between Buffalo and Duluth, navigable by vessels drawing 20 feet. By dredging and blasting in the Detroit and St. Clair rivers this part of the through channel has been deepened from 11 feet. At Sault Ste. Marie, which completely blocked navigation between Lakes Huron and Superior, a canal has been excavated and two locks constructed side by side, each with an 18-foot lift; one of them among the largest and most perfect masonry structures of the world.

It is now proposed to describe briefly a few of the individual works of improvement.

Harbors of refuge, Delaware Bay.—Inside of Cape Henlopen, about equally distant from Philadelphia or New York and the Capes of Chesapeake Bay (the sea entrance to the ports of Baltimore, Norfolk, and Newport News) and convenient to a great portion of our coastwise trade, was begun in 1829 the Delaware Breakwater, behind which, annually, several thousand vessels find shelter while awaiting orders or in stress of weather. The work, as originally designed, was a rubble mound, with the larger stones on the sides and top, in two parts, of which the breakwater proper was 2,556 feet long and the ice breaker 1,359 feet long. So much was completed in 1869. The work of closing the interval between breakwater and ice breaker, 1,350 feet in length, was finished in 1898. The structure is now 5,265 feet in length, rising 14

feet above low water, and its average width at the base is 160 feet. The amount of stone used was approximately 1,100,000 tons.

Since the work was begun, in 1829, there has been such an increase in the draft of vessels that the sheltered area can no longer accommodate the largest ships.

To meet the new demands of commerce a second harbor of refuge has been constructed in the same general locality. Although started in 1896, a breakwater 8,035 feet long and 10 ice piers have been completed for about 50 per cent of the original estimate. Approximately 1,600,000 tons of stone have been placed in the work. The subaqueous portion of the breakwater is a rubble mound; the superstructure is formed by laying large blocks of stone as headers upon the sea and harbor sides, with slopes of 1 on 7. Sheltered behind this breakwater more than 1,000 vessels may anchor at once; and of the anchorage area nearly a square mile has a minimum low-water depth of 30 feet. Vessels of any draft, bound from northern to southern or from southern to northern ports, may now go to sea in doubtful weather with the assurance of finding ample protection at the Delaware capes if overtaken by storm.

Since 1833 the old breakwater has given shelter to about 450,000 vessels, and the two harbors are now annually sought by some 5,000 vessels, not counting tugs, fishing boats, and other small craft.

There is great contrast between the legislative policies which extended the work on the original breakwater over a period of seventy years and that which completed the second and much larger work in five years, and with a less expenditure. Some account will be given later of the gradual improvement in the legislative policies and processes, until to-day, when river and harbor bills are no longer a reproach to Congress nor a mortification to those who must disburse the appropriations.

Galveston Harbor, Texas.—From the Mississippi westward to the Rio Grande, as late as 1890, there was no harbor with entrance deeper than 13½ feet. Galveston was the only port provided with ample interior harbor facilities, and a great

commerce was there carried on under most expensive conditions. By means of lighters the lading of all larger vessels was completed upon the seaward side of the bar, 5 miles from shore. In heavy weather the vessels thus loading in the open Gulf were compelled to put to sea to obtain a safe offing. The cost of lighterage and the increased cost of freight and insurance were borne in largest part by the cotton growers of Texas. Conditions permitted no grain to be handled.

In a desultory way, as irregular and inadequate appropriations became available, the improvement of Galveston Harbor progressed from 1870 to 1890. During this period the average annual expenditure was about one-eightieth part of the sum required for the completion of the work. Considering the rapid deterioration to which incomplete work of this character is subjected and the financial losses due to uncertainty and irregularity of appropriation, it was remarkable that so much was accomplished, the south jetty being completed for a length of nearly 4 miles.

In 1890 Congress adopted the continuous-contract system and provided for a tenfold increase of annual expenditure. From this date the work progressed rapidly to completion in 1897.

The top of the jetties is 5 feet above low water and gently rounded to permit waves to pass over it with least resistance. The side slopes are about 1 on 1.75. The exterior is composed of granite blocks carefully laid in a single layer by means of huge floating derricks. At the outer ends the granite blocks weigh each from 10 to 15 tons. The core of the jetties is of sandstone riprap, deposited from a railway trestle which was extended gradually seaward in advance of the enrockment. The aggregate length of the jetties is 12 miles. Over 2,000,000 tons of material were employed in the work, and the average length of haul from the quarries was about 210 miles. Probably no other work constructed by the hand of man has involved the transportation of such a mass of material such a distance.

The cost of the Galveston jetties was approximately equal to that of the jetties at the mouth of the Mississippi, although

the former are three times as long, and embody within themselves far greater quantities of imperishable material.

The physical result of the Galveston improvement has been the scour from between the jetties of some 20,000,000 cubic yards of sand, compared with the scour of about 3,000,000 cubic yards of material by the Mississippi jetties.

In both localities supplementary dredging has been resorted to, and the demands of commerce have been satisfied with channels from 26 to 30 feet deep.

The canalization of the Great Kanawha.—The Great Kanawha River traverses a region rich in deposits of coal of a superior quality. In low water the river was originally obstructed by gravel shoals which prevented navigation. Since 1875 this river has been canalized by the construction of ten locks and dams. The two upper dams are fixed and are of timber cribs filled with stone. The remaining dams are movable and of the chanoine-wicket type, operated from trestle bridges. When the river is at a sufficiently high stage, the movable dams are lowered, and an open-river navigation is carried on. The upper four locks have clear widths of 50 feet and lengths between quoins varying from 300 to 311 feet. The lower six locks are 55 feet wide and 342 feet long. At low water there is now a 6-foot channel throughout the improved portion of the river, and a great commerce is carried on in coal and lumber.

New York Harbor.—By the dredging of nearly 5,000,000 cubic yards of material in the five years preceding 1892 the main entrance has been deepened from 22½ feet to 30 feet. The removal of 40,000,000 cubic yards of mud and sand will soon result in the completion of a more direct channel 40 feet deep and 2,000 feet wide.

The East River entrance, now safely used by an enormous coasting fleet, was originally obstructed in many places, especially at Hell Gate, where 10-mile tidal currents rushed over and around Hallets Point, Flood Rock, and other lesser obstructions, causing the wreck of many vessels.

The meager results of surface blasting led to the formation

of plans to attack the larger reefs in an entirely original manner. From the bottom of vertical shafts galleries were run in all directions beneath the overlying rock. The simultaneous explosion of numerous mines within the galleries shattered each reef at a single blast. In this manner Hallets Reef was disrupted in 1869–1876, and Flood Rock in 1875–1885. At Hallets Reef over 100,000 pounds of high explosive were used, and at Flood Rock over 250,000 pounds. In these two reefs nearly 6 miles of gallery were driven, and the amount of rock mined or shattered was 461,544 cubic yards. The method employed in this work has become famous in the annals of engineering.

Nothing but the limitations of this chapter prevent recital of other great achievements of graduates in river and harbor engineering. I wish I could tell in detail of the great locks at Sault Ste. Marie and at the Cascades, of the magnificent harbor that has been created at Duluth, of the investigations of Humphreys ('31), and Abbot ('54), upon the subject of the hydraulics of the Mississippi River, 1850–1860. Of the work last mentioned, the results of which have been published and studied all over the civilized world, the following extract illustrates present professional opinion:

> When the entire novelty of the problem set before them is considered, the want of any precedents to guide them, the magnitude of the task, the imperfect means at their command, the short time allowed for the work, and the rapidity with which it was performed, and the results matured and announced, their achievements seem little short of herculean. * * * The work must always stand as a monument of original research, of colossal labor, and of engineering genius. All the work done since has been based on the model set by them. Engineers of the present day owe them an everlasting debt of gratitude. Used with discrimination, their work is still of great value.[a]

Prior to 1890 it was the practice of Congress, in providing for a particular item of river and harbor work, to appropriate biennially a small percentage of the amount needed for its completion. A great handicap was thus placed upon those executing the work. That this condition was finally recognized in Congress may be gathered from the following extracts

[a] William Starling, M. Am. Soc. C. E., in Transactions of the American Society of Civil Engineers, November, 1895.

from an article[a] by the Hon. N. C. Blanchard, once chairman of the House Committee on Rivers and Harbors:

Our method of making appropriations for river and harbor work has been faulty in the extreme. * * * With us an order of survey of the stream or harbor proposed to be improved is made by Congress, and this order is executed by the War Department through the Engineer Corps. Inquiry is then made relative to the present and prospective commerce to be benefited by the contemplated improvement with a view of determining what public necessity exists for the proposed expenditure; and an opinion is required of the officer making the survey and of the War Department, through the Chief of Engineers, as to whether the locality is worthy of improvement or not. If worthy, a plan of improvement is formulated and estimates of the cost figured. All this is submitted in a detailed report to Congress. So far so good. Then, if it be the judgment of Congress that the project is worthy and the improvement be entered upon, the plan is formally adopted and a small appropriation, frequently not more than 10, 15, or 30 per cent of the estimate, is made to begin the work.

* * * There is always uncertainty when the next appropriation to continue the work will be made, and how much it will be. Thus the officer charged with the work of construction is compelled to limit his contracts to the amount actually appropriated. This is soon exhausted, and the work is stopped until the period comes around for the passage of another river and harbor bill. * * * Stoppage of the work for want of funds, as above indicated, not only postpones the period when results will be realized by the completion of the work, but it is wasteful in the last degree by deterioration of the work already done and left in an incomplete condition, and by the plant and working force engaged upon it becoming scattered and removed. * * * Sometimes the results of one year's work are destroyed or become valueless from one cause or another before the next appropriation can be had. Sometimes the engineer, as a matter of economy, or from force of circumstances, withholds the expenditure until more money is appropriated and becomes available for the work. * * * This slow, sporadic, intermittent, uncertain method of providing the means to carry on public works has operated greatly to our disadvantage.

In many instances the final cost of securing desired results has been greatly increased over what would have been required had the estimated cost been made available at once. The fault of our system lies in not appropriating the amount needed to complete public work when it is ordered to be commenced, or in not authorizing the making of contracts to complete it. * * * The officers of the Engineer Corps protested from the beginning against a policy of partial appropriations. * * * Those

[a] North American Review, March, 1894.

of us in Congress who are intimately identified with this branch of public service saw and recognized this; but reforms are of slow growth and it took years to educate popular sentiment in and out of Congress to the point of departure from the old, wasteful system, and the adoption of the new, or what is now called the "Contract or continuous work system."

The "continuous-contract" system was introduced in 1890, and the principle has been extended in successive river and harbor acts until it reached its highest development in the act approved June 13, 1902, which provided for the completion of every great project involving a less expenditure than $1,000,000, and for several years' work on a large and economical scale in the case of more costly enterprises. The last act was marked by the elimination of a number of projects of doubtful utility, and was by no means a "log-rolling" measure. "We have pursued no plan of compromise; we have considered no plan of dividing appropriations according to States, or localities, or membership of this House. We have endeavored to consider every project according to its merits, and made that the sole criterion as to whether it should be included in this bill or not."[a]

But perhaps the most promising feature of the last act was a clause providing for a board of review, composed of five engineer officers, through which the Corps of Engineers is hereafter to be made responsible to a large extent for the general policy of the Government with regard to public works.

When all has been said on the subject of the execution of river and harbor works, there may remain doubt as to the value of the improvements to the country at large. It would not be well if the efforts of so many graduates had not been fruitful of great benefits to the people.

Due to our interior waterways, the maintenance of which is no less necessary to the traffic borne than is the maintenance of railroads and roads, and of which many have been created (as well as maintained) by graduates of the Military Academy, it has recently been stated by the statistician of the Interstate Commerce Commission that the saving to the United States reaches annually the sum of $342,000,000.

[a] Remarks of Hon. Theodore E. Burton, chairman River and Harbor Committee, in the House of Representatives, March 17, 1902.

Upon the Great Lakes, in 1901, not counting shipments to or from foreign ports, there was transported 46,065,288 tons of freight,[a] which may be compared with 26,426,412 tons hauled by the 12,552.35 miles of railroad in the State of Texas during the fiscal year ending June 30, 1902.[b] Upon the Great Lakes the cost of carriage per ton-mile was .99 mill, as compared with 8.58 mills per ton-mile in Texas. If carried by rail at the Texas rate the cost of transporting lake freights during 1901 alone would have exceeded the actual cost by the sum of $178,004,467.87.

The value of the craft engaged in lake transportation during 1901 was approximately $60,000,000. The value of the railroad properties of Texas was in excess of $200,000,000. What, then, would represent the value to the community of the deep channels and harbors, and the locks, that have made possible so great and inexpensive a commerce? It is an indeterminate problem, but no one in possession of the facts would place this value at less than a great multiple of the total expenditures of the United States for river and harbor improvements.

Again let us consider the effect upon commerce of the improvement of Galveston Harbor, Tex., another typical instance of river and harbor improvement.

Between 1840 and 1900 the burden of the largest ocean-going ships increased from 1,155 tons to 15,500 tons. The average draft, loaded, of the 20 largest steamships of each period increased from 19 feet in 1848 to 29 feet in 1898. As a consequence of economies that resulted largely from increases of depth in terminal harbors, with consequent increase of size in ocean carriers, the cost of moving a ton of wheat from New York to Liverpool decreased from $5.75 in 1868 to $1.90 in 1900.

Other conditions being equal, navigable channels are said to compare in value as the cubes of their controlling depths, where the latter are less than the greatest draft of vessels.

If Manchester, England, has found it advisable to expend over $80,000,000 to become a seaport, if Glasgow has profitably

[a] Commerce on the Great Lakes, 1901, Bureau of Statistics, Treasury Department.
[b] Report of Railroad Commission of State of Texas for fiscal year 1902.

expended something like $60,000,000 to secure a deep-water harbor, then certainly there seems no a priori case of extravagance on the part of the United States in expending less than $9,000,000 to secure a deep and capacious port upon the Gulf of Mexico at Galveston.

Nearly equal distances separate the grain fields of Kansas from Chicago and Galveston. Export grain at Chicago is almost 1,000 miles from tide water, while at Galveston it may be loaded directly into the holds of deep-draft ships. In order to compete with prevailing rates from Kansas City to the Gulf other lines terminating at Kansas City and their connections to eastern ports must reduce their rates to a minimum. It has been testified before the Interstate Commerce Commission at meetings held in 1901 and 1902 that to meet rates of from 10 to 15 cents per hundred pounds to the Gulf grain has been hauled from Kansas City to Chicago at as low as 6 cents; and that "* * * in the past six years the price of grain at Kansas City was a great deal higher than the price in Chicago or any other market, figuring on the regular rate of freight."

Although the details would weary the reader, it may easily be proven that, due to the existence of the port of Galveston the farmers of Nebraska, Kansas, Colorado, Texas, Oklahoma, and Indian Territory receive at least $6,000,000 per annum additional for their grain. The farmers of Texas alone receive $2,000,000 per annum more for their cotton crop, which often exceeds 3,000,000 bales, and another $2,000,000 is a small estimate for savings in the handling, through Galveston, of cotton-seed products, lumber, and general merchandise. Thus it is seen that the annual saving to the community due to the work at Galveston amounts to a fair interest upon all expenditures throughout the country for river and harbor improvements from 1820 to the present day.

CONCLUSION.

There must be engineers in war, and much of the needed training of engineers would fail if undertaken in peace as a part of the routine of drill, for the destruction of materials

involved would cause great and immediately unprofitable expenditures which would never be provided for.

That training upon civil works, as supplemental to peace training of a military character, may produce soldiers of the highest type would seem to be proved by statistics of the civil war. From the relatively small number of officers who had served in the Corps of Engineers at least 41 were appointed general officers in command of Federal or Confederate troops. The names may be mentioned of at least ten who commanded armies in the field: Lee ('29) and Meade ('35), who commanded the opposing hosts at Gettysburg; Joseph E. Johnston ('29), McPherson ('53), and the great corps commanders, Humphreys ('31), Newton ('42), Wright ('41), and Warren ('50.)

In addition to their military duties, and at times in place of them, a number of graduates to-day find in river and harbor work and the like a field of great usefulness to their country. Thus is afforded a school of great value in time of peace for the development of administrative talent, knowledge of men and of materials, the habit of industry, and ability to meet emergencies and surmount difficulties.

THE SERVICES OF GRADUATES IN CIVIL LIFE, 1802–1902.

By WINFIELD SCOTT CHAPLIN,

Chancellor of Washington University, St. Louis—U. S. Military Academy, 1870.

WHEN the Military Academy was founded in 1802 scientific schools of all kinds were lacking in our country. There were colleges which were primarily intended for the education of men for the ministry, but did educate incidentally many who became lawyers and physicians; and these colleges taught, besides the ancient classic languages, mathematics and philosophy, which were considered the essentials of their course, the elements of physics, chemistry, and some or all the branches of natural history. Such beginnings of science seem never to have been sufficient to serve as a basis for a professional training. The young country had not reached the point in its development where the trained engineer and scientific man were needed. The Academy at the outset gave but little promise of usefulness in developing trained men of any kind; its course was short; the attendance of the cadets was irregular; the standard of admission was low; and the conduct of its affairs was unsympathetic and discouraging. It was only in 1817, when Colonel Thayer became Superintendent, that the institution took on its characteristic form, and that it could be expected to produce graduates who would show the effects of a thorough course in pure mathematics and in the physical and engineering branches which are founded on mathematics. Since that date, as will appear, the number who have resigned their commissions and betaken themselves to engineering and other work in civil life has been considerable.

The first school of engineering established in the United

States was the Rensselaer Polytechnic Institute of Troy, N. Y., which opened in 1824; but for about twenty years its course of instruction was but little if any better than that of the Military Academy in its earliest days, and accordingly the Military Academy had practically this field of education to itself up to about 1845, since which time the numerous schools of engineering which have sprung up in all the States have competed with the Academy in supplying the demand for educated engineers. The course of study at the Academy in all except the strictly military branches has always been highly theoretical; there has been but little practical application. Especially has this been the case in mechanics, which has always been studied to an extent not equaled in the regular course of any other institution. When engineering was reached by the student it was assumed that he had pure mathematics and mechanics so thoroughly at his command that most mathematical demonstrations could be omitted and the instruction in engineering limited to a description of engineering materials and works. It would be interesting, though perhaps difficult, to institute a comparison between the graduates of the Academy and those of schools where the instruction is of a different kind, where the course is made as practical as possible and application keeps even pace with the development of theory.

Of the first 100 graduates (1802–1814) we find that 55 resigned their commissions after longer or shorter terms of service, of whom only 4 became engineers, and of these 2 did not resign till many years after graduation, when there was a great demand for educated engineers; 10 devoted themselves to agriculture; 7 entered mercantile pursuits; 4 became sutlers; 5 became teachers; 5 entered non-military public employment, and 4 became lawyers. Of 16 the occupation in civil life is unknown. This showing may, I think, be taken as fairly representative of the demands at that time for educated men in the various callings which the training of these graduates fitted them to enter. Agriculture was of course the great business of the country. Teachers were in great demand. To enter the practice of law required but

scanty preparation. The number who became sutlers is indicative of a social sentiment widely different from that which prevails today.

Up to the time of the civil war the percentage of resignations continued to be large. This fact was due mainly, I think, to the unsettled policy in reference to the Regular Army and to the absence of any system of retirement for disability or age. The army officer could not hope, on the small pay he was allowed, to accumulate enough money to provide for old age or to care for himself and family should disease break down his health. Indeed, the records show many cases where resignation was closely followed by death, showing probably that officers who had become incapacitated had no choice but resignation.

Taking the 100 graduates, numbered from 392 to 492, who graduated in 1825, 1826, and 1827, we find that 48 resigned, of whom 5 became teachers or scientists, 10 became lawyers, 14 became engineers, 2 became farmers, 7 entered mercantile pursuits, 5 became clergymen, 1 became a Government clerk, 2 resigned to join the Southern army in the civil war, and of 2 nothing is known after resignation.

Since the civil war, with higher pay and a regular system of retirement on account of old age or disability and a fair provision for the remaining years of life, there has been a marked decrease in the percentage of resignations. For example, of the 100 graduates, numbered from 2312 to 2412, who graduated in the classes of 1870, 1871, and 1872, only 24 have resigned, and 2 of these have returned to the Army. Of these, 5 became manufacturers, 4 entered commercial pursuits, 3 became engineers, 3 became lawyers, 2 devoted themselves to scientific work, 1 became a teacher, and of 6 the occupation is unknown. The difference in occupation between these graduates and the first hundred graduates is marked.

There seems to be no way of exhibiting the work of the graduates of the Academy in civil pursuits except to give accounts of the achievements of those who have been most prominent and successful in each of the departments into which the work of the graduates may be roughly divided.

The accounts must of necessity be very succinct and their number limited. Yet we may hope in this way to give an impression as to the work of the graduates in civil life. The table of the civil occupations of graduates, 1802–1902, should also be consulted. (See page 483.)

ENGINEERS.

As has already been said the Academy had for many years almost a monopoly of engineering education. The first graduate of the institution, General Joseph G. Swift (1), had a distinguished civil career embracing all the branches of civil engineering which were practiced in his time. He built railroads, making the first use of the T-rail in America. He was in charge of important harbor improvements. He also held important civil appointments. He was surveyor of customs for the port of New York for eight years.

Major-General William Gibbs McNeill (172), of the class of 1814, who resigned his commission in 1837, had had a wide and successful experience as a builder of canals and railroads before his resignation, the authorities at Washington having assigned him to these civil duties. His work before and after his resignation from the Army extended into nearly every coast State from Massachusetts to Florida.

Captain Andrew Talcott (181), of the class of 1818, who, while in the Army, had devised the method of determining latitude by means of the zenith telescope now in general use, resigned after a service of eighteen years and devoted himself to geodetic and engineering work. He had a part in the building of the first railroad in Mexico—that from Vera Cruz to the City of Mexico—and was largely instrumental in developing the railroads of the Southern States.

Major George Washington Whistler (214), of the class of 1819, resigned in 1833. After considerable experience, both before and after his resignation, on the largest railroad undertakings of this country, an experience which gave him wide knowledge in civil as well as mechanical engineering, he became, in 1842, by appointment of the Russian Government, consulting engineer of the St. Petersburg and Moscow Railroad. In this capacity he had to undertake the construction

of 400 miles of railroad and the establishment of all the shops and the training of all the men necessary to his great task. He gained the entire confidence of the Czar, and was consulted by him on the most varied kinds of engineering problems. When he died, in Russia in 1849, his work was not completed, but it had advanced so far that, all the great questions decided, it could be carried through by others.

Daniel Tyler (216) graduated in the class in 1819 and served in the Army until 1834. He was connected with many railroad enterprises both in the northern and southern States as an engineer and as a manager. While he was best known in the latter capacity, he had a high standing as an engineer. He founded the city of Anniston, Alabama, where he built extensive factories. His experience included civil, mechanical, and mining engineering, and in all these branches he was very successful. He died in 1882.

William H. Swift (231), of the class of 1819, remained in the Army thirty years and like other engineer officers of his time was, before his resignation, employed on many works of a non-military character, the Illinois and Michigan Canal and the Boston and Albany Railroad, west of Worcester, among the number. His connection with the canal continued for many years after his resignation. He was in turn president of the Philadelphia, Wilmington and Baltimore Railroad, of the Massachusetts and Western Railroad (now part of the Boston and Albany Railroad), chairman of the board of trustees of the Hannibal and St. Joseph Railroad, and a director of the St. Louis, Iron Mountain and Southern Railroad. He died in 1884.

Isaac R. Trimble (302), of the class of 1822, resigned in 1832. He was chief engineer of several railroads in the Middle States and a consulting engineer of extensive experience. He died in 1888.

George S. Greene (327), of the class of 1823, resigned in 1836. After a wide experience in railroad engineering he became connected with the Croton waterworks of New York City as engineer in charge, chief engineer, and commissioner, and held a very prominent place among the leading engineers of waterworks, sewers, canals, and docks. He died in 1899.

John Childe (471), of the class of 1827, resigned in 1835. Until his death in 1858 he was engaged in engineering work on railroads as chief engineer and on large public works, among them the improvement of the St. Lawrence River.

Thompson S. Brown (395), of the class of 1825, resigned in 1836, and after experience in various branches of engineering in the United States became consulting engineer on the St. Petersburg and Moscow Railroad in succession to Whistler (214). He died in 1855.

The lack of space forbids a full notice of the many who from this time onward have been engaged in engineering. We must be content to name those who have been mainly engaged in that profession: Alexander J. Center (491), class of 1827, who was connected with the Panama Railroad; James Barnes (545), class of 1829, a railroad engineer of high reputation; George W. Cass (665), class of 1832, president of the Pittsburgh, Fort Wayne and Chicago Railroad and the Northern Pacific Railroad; William H. Sidell (712), class of 1833, connected with trans-isthmian railroads; Thomas A. Morris (753), class of 1834, chief engineer and president of several railroads of the middle Western States; Hermann Haupt (816), class of 1835, who devoted a long life to engineering and management of railroads, and who wrote valuable treatises on engineering subjects; Montgomery C. Meigs (846), class of 1836, who, after retirement, planned and erected Government buildings in Washington with remarkable success and economy; Lloyd Tilghman (887), class of 1836, a railroad engineer; George B. McClellan (1273), class of 1846, who was before the civil war chief engineer and vice-president of the Illinois Central Railroad, and after this war engineer in chief of the department of docks of New York City; Egbert L. Viele (1360), class of 1847, an engineer of parks and of railroads; James H. Wilson (1852), class of 1860, railroad engineer, manager, and president; Reuben W. Petrikin (2058), class of 1865, chief engineer of the International Railroad from Laredo to the City of Mexico; Lewis M. Haupt (2162), class of 1867, who, after a long service as professor of engineering, became a specialist on various branches of hydraulic engineering; Russell Thayer (2525), class of 1874, the chief

engineer and superintendent of Fairmount Park, Philadelphia.

It seems clear that, relatively speaking, the Military Academy has lost the preeminence which it once held in the civil-engineering work of the country, which fact is easily accounted for by the establishment and development of schools of engineering all over the country in which much more attention is given to engineering than can be given to it at the Military Academy. To attain the greatest success in engineering a man must have not only the scientific training, knowledge, and aptitude, but a grasp of the methods of business. It is a question whether the training at the Military Academy gives the last of these requisites. The civil-engineering works of the United States Engineer Department, river improvement and harbor works, conducted as they are wholly by graduates of the Military Academy, will always be a monument of the civil engineering knowledge and ability of its alumni. What other country can show works of such magnitude, planned so skillfully and carried on so honestly? Others will speak of these works in detail as they have been executed by army officers still holding commissions. I note their prominent qualities here in order to bring together into one view all the civil-engineering work of West Point graduates.

TEACHERS AND EDUCATORS.

The first graduate who became a teacher was Capt. Alden Partridge (15), class of 1806, who, having been professor of mathematics and engineering at the Academy, resigned in 1818. He was the founder of various successful private military schools and of Norwich University.

His first school was founded at Norwich, Vermont, in 1820, which was removed to Middletown, Connecticut, in 1825, and back to Norwich again, where it was incorporated as Norwich University in 1834. In 1840 he founded a military school at Portsmouth, Virginia, and subsequently Jefferson Military College in Mississippi, a school at Pembroke, New Hampshire, in 1847 another at Harrisburg, Pennsylvania, and another, in 1853, at Brandywine Springs, Delaware. In all

these institutions he combined military training with teaching of rather a scientific turn. He died in 1854.

Charles Davies (157), class of 1815, after filling the professorship of mathematics in the Military Academy, resigned in 1837 to accept the professorship of mathematics in Trinity College, Hartford, Conn. He was reappointed into the Army and again resigned in 1845 to become professor of mathematics and philosophy in the University of New York. In 1857 he became professor of higher mathematics in Columbia College, New York City, with which institution he remained connected until his death in 1876. He was the author of numerous mathematical text-books which for many years were the best of their kind. His earliest books were translations from French authors. In this way he was instrumental in giving to our mathematical text-books a decidedly French form, rather than an English form, which it would have been reasonable to expect, a peculiarity which has been maintained until our time.

Horace Webster (183), class of 1818, resigned in 1825 and was for twenty-three years professor of mathematics at Geneva College, Geneva, N. Y. Then for eighteen years he was principal of the Free Academy, New York City, and president of the same institution under the name of the "College of the City of New York" for three years, until 1869. During his connection with this institution he held the professorship of philosopy. He died in 1871.

Edward H. Courtenay (262), class of 1821, after serving for five years as professor of natural and experimental philosophy, resigned in 1834 to become professor of mathematics in the University of Pennsylvania, which position he held two years. In 1842 he became professor of mathematics in the University of Virginia, where he remained until his death in 1843. He was the author of a treatise on the Calculus, which was in use as a text-book in colleges and scientific schools for many years.

Alexander Dallas Bache (392) was graduated in 1825 and resigned in 1829 to become professor of natural philosopy and chemistry in the University of Pennsylvania (1828–1836

and again 1842–43). He was president of Girard College 1836–1841, principal of the Philadelphia High School 1841–42, and superintendent of the public schools of the city. His greatest service was as the reorganizer of the United States Coast and Geodetic Survey, of which he was the chief from 1843 to 1867. He was president of the National Academy of Sciences from its foundation in 1863 to 1867.

James Clark (574), class of 1829, resigned in 1830 and became professor of mathematics in Mount St. Mary's College, Maryland. He later held other professorships in the same institution. In 1844 he became a member of the Society of Jesus, and until his death in 1885 he held positions in colleges of that society as professor or treasurer or vice-president or president.

Roswell Park (629), class of 1831, resigned in 1836 and became professor of natural philosophy and chemistry in the University of Pennsylvania. In 1843 he became a priest of the Protestant Episcopal Church, and thereafter until his death in 1869 he was employed in educational institutions connected with that church. He was for eleven years either president or chancellor of Racine College, Wisconsin.

William A. Norton (635), class of 1831, resigned in 1833. After holding a professorship in the University of the City of New York, in Delaware College, and in Brown University, he became in 1852 professor of civil engineering in the Sheffield Scientific School of Yale University, where he remained until his death in 1883. He was a member of the National Academy of Sciences.

Francis H. Smith (711), class of 1833, resigned in 1836. In 1839 he became superintendent of the Virginia Military Institute, Lexington, Va., which office he held, except when the institute was closed on account of the civil war, until his death in 1890. He was a translator and an author of textbooks on mathematics.

Richard S. Smith (779), class of 1834, resigned in 1856 and became professor of mathematics, engineering and drawing in the Brooklyn Collegiate and Polytechnic Institute, which position he held until 1859, when he became director of the Cooper Institute, New York City. He was president

of Girard College from 1863 to 1867 and a professor in the U. S. Naval Academy from 1870 to 1877.

Henry H. Lockwood (863), class of 1836, resigned in 1837. In 1841 he became a professor of mathematics in the U. S. Navy, which position he held, except during the civil war, until he retired in 1876. He held at various times the professorships of mechanics, of gunnery, of tactics, of natural and experimental philosophy at the U. S. Naval Academy, and was engaged in astronomical calculation at the United States Naval Observatory, Washington, in the later years of his service.

Bushrod R. Johnson (1039), class of 1840, resigned in 1847 and became a professor in the Western Military Institute, Georgetown, Ky. He was connected with this institute as superintendent or professor, except during the civil war, until his death in 1880.

Henry L. Eustis (1111), class of 1842, resigned in 1849 to become professor of engineering in the Lawrence Scientific School of Harvard University. He was also dean of the Lawrence Scientific School until his death in 1885.

Alexander P. Stewart (1122), class of 1842, resigned in 1845 and after holding the professorships of mathematics and natural and experimental philosophy in several universities in the South became, in 1874, chancellor of the University of Mississippi. He died in 1891.

William G. Peck (1206), class of 1844, resigned in 1855. After serving as professor for two years in the University of Michigan, he became connected with Columbia College, New York City, as professor of mathematics, mechanics, and astronomy. He was a prolific author of mathematical textbooks, the translator of Ganot's Physics, and the author of a Mathematical Dictionary and Encyclopedia. He remained in the School of Mines of Columbia College until his death in 1892.

Henry Coppée (1241), class of 1845, resigned in 1855 and became professor of English literature and history in the University of Pennsylvania. Here he remained until 1866, when he became president of Lehigh University, Bethlehem, Pennsylvania. In 1875 he resigned the presidency but

retained the professorship of English literature and history which he had filled since he became president, and served in that capacity until his death in 1895. He was the author of many works and the editor of many compilations, and he wrote numerous articles which appeared in reviews and magazines.

William P. Trowbridge (1369), class of 1848, resigned in 1856. He served one year as professor of mathematics in the University of Michigan, four years in the United States Coast Survey, four years in the civil war. After a practical experience of five years in mechanical engineering, he was appointed professor of dynamic engineering in the Sheffield Scientific School of Yale University. Here he remained until 1877, when he became professor of engineering in the School of Mines of Columbia University, New York City. He died in 1892.

G. W. Custis Lee (1631), class of 1854, after resigning became, in 1865, professor of civil and military engineering in the Virginia Military Institute. Since 1871 he has been president of the Washington and Lee University.

Alexander S. Webb (1689), class of 1855, resigned in 1870. From 1869 until 1903 he has been president of the College of the City of New York, in succession to Horace Webster, of the class of 1818.

Frank Soulé (2125), class of 1866, resigned in 1870 and became professor of mathematics in the University of California. In 1872 he was transferred to the chair of engineering, which he has since held.

Robert Fletcher (2230), class of 1868, resigned in 1870 and became professor of civil engineering in the Thayer School of Civil Engineering (a graduate school) of Dartmouth College, New Hampshire.

Winfield S. Chaplin (2313), class of 1870, resigned in 1872. After practice as a civil engineer, three years as professor of mechanics at the Maine State College, five years as professor of civil engineering at the Imperial University of Japan, three years at Union College, New York, he became professor of engineering in and dean of the Lawrence Scientific School of Harvard University in succession to Eustis (1111). In 1891

he became chancellor of Washington University, St. Louis, Mo., which position he now holds.

Edward S. Holden (2314), class of 1870, resigned in 1873 to become professor of mathematics in the U. S. Naval Observatory at Washington. From 1881 to 1885 he was professor of astronomy in the University of Wisconsin; from 1885 to 1888, president of the University of California, and director of the Lick Observatory to 1898. Besides scientific writings he is the author of a number of books for colleges and schools.

Although this chapter is devoted to the work of graduates in civil life, it will not be complete without a mention, at least, of the distinguished teachers, members of the Academic Board of the U. S. Military Academy itself. Through their textbooks, which have been used in other institutions; through other writings and by their personal weight and influence, many of them have left a distinct mark on the educational history of the country. Including only the names of the most distinguished among those no longer living we have Davies (157), Mahan (361), Bartlett (429), Church (508), Bailey (666), and Michie (1996).

The number of graduates who have for longer or shorter terms held positions as teachers is quite large. From the few specially named above it appears that graduates of the Academy have reached high positions in the educational world. The greater number of them have entered the departments of mathematics or civil engineering. Yet others have succeeded in subjects as remote from mathematics as English and philosophy.

The course of study at the Academy is certainly not designed to develop literary production among its graduates. The time of a cadet is too fully occupied to allow even of an extensive acquaintance with literature, and the study of English composition has never been given an important place in its curriculum. Yet in the writings of its graduates, whether in the form of autobiographies, such of those of Grant and Sherman, or in its reports of services, there has always been the simplicity, directness, and clearness which are second nature to the soldier and which go far to make good English. Of the publications of the graduates another writer is to treat. Here

it is appropriate that I should speak only of some of those who have, after leaving the Army, taken up writing as a regular occupation.

Ethan A. Hitchcock (177), class of 1817, resigned in 1855. He devoted himself to philosophical and metaphysical study and writing. He published seven volumes.

Edward D. Mansfield (206), class of 1819, resigned in 1819. He published several books on various subjects, the most valuable of which is his "Memories." He held a high position as a contributor to the press.

Albert T. Bledsoe (602), class of 1830, who resigned in 1832, wrote several books on a wide range of subjects and was a successful editor of the Southern Review.

Roswell W. Park (629), class of 1831, resigned in 1836. He published several works, mostly compilations.

Charles King (2136), class of 1866, retired in 1879; the author of many novels of military life.

Richard H. Savage (2236), class of 1868, resigned in 1870; author of several novels.

Arthur S. Hardy (2282), class of 1869, resigned in 1870; author of several very successful novels.

MINISTERS OF THE GOSPEL.

To the ministry the Academy has contributed over 20 of its graduates, the great majority of whom have entered the Protestant Episcopal Church, in which Polk (477), class of 1827, became a bishop, and Woodbridge (442), class of 1826, rector in Richmond, Virginia; Parks (449), of the class of 1826, who declined a bishopric and served as chaplain of the Military Academy, and Vinton (590), class of 1830, for many years a rector in New York, were the most prominent.

Culbertson (991), class of 1839, and Garst (2631), class of 1876, were missionaries, and both died at their posts in eastern lands. Deshon (1168), class of 1843, became a Roman Catholic priest, and is now Superior-General of the Paulists.

PHYSICIANS.

Twelve graduates have become physicians, of whom probably the best known are Picton (372), class of 1824; Brush (680), class of 1832, and Metcalfe (947), class of 1838.

LAWYERS.

About 200 graduates have, after resigning, become lawyers. We find records of them in judicial positions and in positions of trust, but it is impossible to obtain such details of their careers as would enable us to speak as to their general success.

PUBLIC POSITIONS.

In our country the successful soldier is a favorite candidate for high public office. It, therefore, is not strange that the graduates of the Academy have held many such positions. It would occupy too much space to give a list of all who have been favored in this way, but we may name a few of the most prominent.

Grant (1187), class of 1843, was President of the United States for two terms. McClellan (1273), class of 1846, and Hancock (1223), class of 1844, were unsuccessful candidates of great parties for the same office. Donaldson (233), class of 1820, afterwards an unsuccessful candidate for the Vice-Presidency, was envoy extraordinary and minister plenipotentiary to Prussia from 1846 to 1849. McLane (927), class of 1837, was minister to China from 1853 to 1856, envoy to Mexico in 1859–60, envoy extraordinary and minister plenipotentiary to France from 1885 to 1889. Lawson (998), class of 1839, was minister plenipotentiary to Austria-Hungary from 1887 to 1889. Rosecrans (1115), class of 1842, was envoy and minister plenipotentiary to Mexico in 1868–69. Longstreet (1164), class of 1842, was minister resident to Turkey in 1880–81. Maury (1308), class of 1846, was minister to the United States of Colombia from 1887 to 1889. Torbert (1697), class of 1855, was minister resident to the Central American States from 1869 to 1871. Kilpatrick (1904), class of 1861, was envoy extraordinary and minister plenipotentiary to Chile from 1865 to 1868. Porter (1849), class of

1860, has been envoy extraordinary and ambassador plenipotentiary to France since 1897. Grant (2406), class of 1871, was envoy extraordinary and minister plenipotentiary to Austro-Hungary from 1889 to 1893. Hardy (2282), class of 1869, has been minister to Persia, minister to Switzerland, and since 1902 envoy extraordinary and minister plenipotentiary to Spain.

The following have been governors of States:

Wallace (270), class of 1821, of Indiana, 1837–1840.
Allston (271), class of 1821, of South Carolina, 1856–1858.
McLane (927), class of 1837, of Maryland, 1885.
Buckner (1216), class of 1844, of Kentucky, 1887–1891.
McClellan (1273), class of 1846, of New Jersey, 1878–1881.
Stoneman (1304), class of 1846, of California, 1883–1887.
Burnside (1348), class of 1847, of Rhode Island, 1866–1868.
Nicholls (1688), class of 1855, of Louisiana, 1877–1880 and 1888–1892.
Lee (1755), class of 1856, of Virginia, 1886–1889.
Marmaduke (1789), class of 1857, of Missouri, 1885–1887.
Ames (1892), class of 1861, of Mississippi, 1874–1876.

The Academy has been well represented in the United States Senate and House of Representatives as well as in the Cabinet, but space does not allow of the introduction of the names of the graduates who have held these positions.

SCIENTISTS.

Among the graduates who have made names in scientific pursuits outside the Army, we should mention the astronomers Mitchell (555), class of 1829, and Holden (2314), class of 1870, both practical astronomers in charge of the largest telescopes of their time, and writers on and popularizers of astronomy; Mather (522), class of 1828, and Whittlesey (660), class of 1831, geologists who have added greatly to the knowledge of the geology and mineral wealth of the country; and Bache (392), class of 1825, Superintendent of the United States Coast Survey for twenty-four years. The following graduates have been members of the National Academy of Sciences—the highest American distinction of an American man of science. The Academy was founded in 1863.

Graduates who have been members of the National Academy of Sciences.

H. L. Abbot (1632), A. D. Bache (392), J. G. Barnard (708), W. H. C. Bartlett (429), T. L. Casey (1536), Comstock (1677), Holden (2314), A. A. Humphreys (641), E. B. Hunt (1232), D. H. Mahan (361), M. C. Meigs (846), J. Newton (1112), W. A. Norton (635), J. G. Totten (10), Trowbridge (1369), G. K. Warren (1451).

MANUFACTURERS.

Many of the graduates who have entered civil life have devoted themselves to manufacture or to commercial pursuits. Of these the following have attained unusual success:

Robert R. Parrott (363), class of 1824, resigned in 1836. He was the superintendent of the West Point Iron and Cannon Foundry at Cold Spring, New York, for thirty-one years. He manufactured the rifled cast-iron cannon which went by his name.

Henry Du Pont (727), class of 1833, resigned in 1834. He became director and proprietor of extensive powder works at Wilmington, Delaware.

Joseph R. Anderson (845), class of 1836, resigned in 1837. He was president of the Tradegar Iron Works at Richmond, Virginia, from 1841 until his death in 1892.

William B. Franklin (1167), class of 1843, resigned in 1866. He was vice-president and general agent of the Colt's Fire Arms Manufacturing Company at Hartford, Connecticut, until 1888.

Ambrose E. Burnside (1348), class of 1847, resigned in 1865. He became president or director of several railroads, and was president of the Rhode Island Locomotive Works until his death in 1881.

John C. Palfrey (1760), class of 1857, resigned in 1866; treasurer of the Merrimack Manufacturing Company at Lowell, Massachusetts, until 1874; and since that year, of Manchester Mills, New Hampshire.

Horace Porter (1849), class of 1860, resigned in 1873; vice-president of the Pullman Car Company since 1873.

Henry A. Du Pont (1888), class of 1861, resigned in 1875; son and successor of Henry Du Pont (727), powder manufacturer, Wilmington, Delaware.

H. B. Ledyard (2064), class of 1865, resigned in 1870; president of the Michigan Central Railroad since 1883.

George A. Garretson (2195), class of 1867, resigned in 1870; banker at Cleveland, Ohio.

Leander T. Homes (2198), class of 1867, resigned in 1869; banker, New York City.

Francis V. Greene (2312), class of 1870, resigned in 1886; president of Barber Asphalt Paving Company.

William R. Quinan (2319), class of 1870, resigned in 1881; an authority on explosives and their manufacture; now in charge of a manufactory of dynamite in South Africa.

Charles W. Burrows (2328), class of 1870, resigned in 1872; president of Burrows Brothers Company, extensive booksellers, Cleveland, Ohio.

Dexter W. Parker (2350), class of 1870, resigned in 1871; president of the Charles Parker Company, manufacturers of hardware and shotguns, Meriden, Connecticut.

Frank O. Briggs (2416), class of 1872, resigned in 1877; manufacturer of wire rope, Trenton, New Jersey.

Eugene Griffin (2552), class of 1875, resigned in 1889; vice-president of the General Electric Company in 1892 and president of the Thomson-Houston Electrical Company in 1893, and is a director of the European branches of these companies.

It is to be expected, naturally, that the Military Academy will stand or fall with the achievements and records of its graduates in strictly military matters, and judged on this basis its success is secure; but it is extremely gratifying to see, as we must from the foregoing facts, that its graduates succeed remarkably in the non-military callings of civil life. To those of us who hold that the main object of education is rather the training of the mind than the acquisition of a body of facts, the success of the graduates in civil life comes as a confirmation of our views. The teaching at the Academy since the time of Colonel Thayer has laid more and more stress on

thoroughness of understanding. There has been little patience with displays of general knowledge. The cadet must know that a statement is or is not correct and why. Criticise the extent and distribution of the studies as we may, regret as some of us do that all students are obliged to go along together over the same curriculum, whatever their individual powers and tastes may be, yet we must admit that the mental training which the cadets receive does enable them not only to perform their military duties in a manner creditable to themselves and their country, but also to meet the requirements of civil life in its widest variation in a manner of which we may all feel proud.

CADET GYMNASIUM (BUILT 1893) AND STATUE OF COLONEL THAYER (DEDICATED 1883).

THE PHYSICAL TRAINING OF CADETS, 1802-1902.

By Lieut. H. J. KOEHLER, U. S. Army.

OWING to the lack of authentic data the place given to bodily exercise in the curriculum of the Academy during the first years of its existence is wrapped in comparative obscurity. Enough has been gleaned from various sources to establish beyond conjecture that efforts were made at the beginning to train the physical as well as the mental side of the cadet. From what can now be discovered it is difficult to establish by what means this was accomplished—whether by purely military drills or by a course of crude gymnastics. Doctor Hartwell, in his report on the Physical Training in American colleges, is inclined to believe that it was the former. He states:

> Bodily training, under the heads of Military Instruction and Sword Exercises, received marked attention from the first.

In appendix to his report, published by the Commissioner of Education in 1899, the following reference is made to the training at West Point:

> Excepting the Military Academy at West Point, in whose curriculum bodily exercises have figured more or less largely since 1817, the "American Literary, Scientific, and Military Academy," founded at Norwich, Vt., in 1820, by Capt. Alden Partridge, formerly Superintendent at West Point, seems to have been the first educational institution of note in America to attempt to connect "mental improvement with a regular course of bodily exercise and the full development of physical powers." The example of the West Point and Norwich academies proved mildly stimulating and led to the establishment of perhaps a score of select military schools for boys, etc.

This extract is of more than passing interest to graduates of the Academy, as it not only credits their alma mater with being the first American educational institution to adopt a system of rational physical education, but also ranks one of its officers among the first exponents of rational training in America.

That Captain Partridge held very decided views on the subject of the physical training of students, and that he did not believe ordinary military exercises were sufficient, and that he was impressed with the value and importance of gymnastic training, is shown by the following extract from a lecture by him:

> Another defect in the present system is the entire neglect, in all our principal seminaries, of physical education. The great importance and even absolute necessity of a regular and systematic course of exercise for the preservation of health, and confirming and rendering vigorous the constitution, must be evident to the most superficial observer. It is for want of this that so many of our most prominent youths lose their health by the time they are prepared to enter on the grand theater of active and useful life. That the health of the closest applicant may be preserved, when he is subjected to a regular and systematic course of exercises, I know from practical experience; and I have no hesitation in asserting that in nine cases out of ten it is just as easy for a youth, however hard he may study, to attain the age of manhood with a firm and vigorous constitution as it is to grow up puny and debilitated, incapable of either body or mental exertion.

That the exponent of this theory, which after nearly a century's discussion has been finally accepted by educators the world over, did not content himself with theorizing is borne out by the fact that after he relinquished his command at West Point he established no less than four schools modeled upon the Military Academy plan. Physical Training speaks of his labors at Norwich as follows:

"Captain Partridge opened his American Literary Scientific Academy at Norwich, Vt., his native town, September 4, 1820. In a card published in April, 1825, on the eve of his departure for Middletown, Conn., for the purpose of reopening his seminary in that place, Captain Partridge set forth the results of his labors at Norwich. He claimed that his plan of "connecting mental improvement with a regular course of bodily exercises and the full development of the physical powers, the whole conducted under a military system of discipline," had succeeded beyond his most sanguine expectations. Out of 480 pupils who had entered the seminary from 21 States only one had died there. "Many of my pupils, and those the

closest applicants to study," he says, "walk with facility 40 miles per day. On a recent excursion to the summit of the most elevated of the White Mountains, with a party of 50 of my pupils, a large proportion of them walked, on the last day, 42 miles. Belonging to this party was a youth of but 12 years of age, who walked the whole distance, 160 miles, carrying his knapsack, and returned in good health."

In the absence of other evidence, the character of the man and his subsequent labors in the field of superior education are sufficient to establish the fact beyond reasonable doubt that physical training formed a part of the regular curriculum at the Military Academy during Captain Partridge's administration, and that the Academy was the first institution in America to recognize physical training officially. In 1817 the Academy was remodeled and reorganized, and a system of instruction was inaugurated which in all essentials has remained unchanged to the present time. Reforms are always accomplished at the expense of something, and in this instance it was at the expense of physical training; this is evident even from the meager records now on hand, which make no mention whatever of physical training except the military drills, sword exercises, and a crude game of football. That the results obtained from military drills were deemed highly satisfactory is evidenced by the following extracts from a paper by E. D. Mansfield, of the class of 1819, a son of Professor Mansfield, who was the head of the department of philosophy in 1802–3 and again in 1814–1818:

> The only remaining point peculiar to the system at West Point is that of military exercises. As a military institution, this is a necessity, but it is also a great advantage as a means to physical education. This is a kind of education too much neglected, and for which civil colleges afford little opportunity and no encouragement. * * *
>
> The military exercises at West Point accomplish great results. They give admirable exercise to the body, occupy time which might be wasted, and compel Cadets to give up late night studies. * * * Thus the system of discipline at the Military Academy at once strengthens the body, stimulates ambition, prevents idleness, and compels the mind to pursue the objects of reason rather than the charms of imagination.

This was written of an age when comforts were few and

inconveniences many; when the drill grounds were just as nature had made them, instead of beautiful turf-covered plateaus; when Cadets were compelled to do the work now usually done by horses, as in artillery drill, for instance; in fact, it was written about a time when the conditions of everyday life made rugged health an imperative factor, upon which more than anything else success was dependent. Changes were, however, constantly made, comforts were introduced, and as every academic department was intent upon perfecting and broadening its scope, military drills ceased to occupy the prominent place of years before. The rapid strides made in the development of the different departments had to be met by more constant application on the part of Cadets. In consequence, the benefits obtained from its curtailed military drills did not compensate for this extra mental exertion, and it is not surprising to find that this state of affairs did not escape the notice of the Board of Visitors for 1826. They made the following recommendation, which is of more than ordinary interest, as it is the first time gymnastic training for Cadets is officially mentioned:

> In the next place your committee believe that a building is wanted for gymnastical exercise, which will serve at the same time for a riding school, a fencing school, and a military drill hall. A thorough and careful physical education is of more importance to a military officer than to any other person; but it is not yet offered at this Academy. The drill during the summer months is sufficient to give cadets a healthful exercise and no more; but during the winter this source fails and the spirits and activity fail with it. It is proposed, therefore, that a plain building merely sufficient to afford shelter be erected, and that a systematic exercise of the whole person be diligently practiced during the winter under a gymnastical teacher, who shall be provided to superintend it.

The building recommended by this Board was not ready for occupancy until thirteen years later, and instead of being a plain building was a handsome stone structure, standing on the site of the present academic building. In it provision was made for recitation rooms, riding, and fencing hall. It is strange, however, that no provision was then made in this building for instruction in gymnastics. The subject of physical training rested here for thirty years, nothing more being

done until February 2, 1846. On that date the following special order was published:

1. In order to counteract the injurious effects likely to arise from too sedentary habits of the Corps of Cadets at this period of the year, when military exercises are necessarily suspended, and with a view to physical development, the Superintendent has caused a gymnasium to be prepared, which, however limited in extent, will, it is hoped, answer the desired end until something more extensive and prominent can be established.

2. The exercises will commence in the gymnasium to-day, under the direction of First Lieut. H. C. Wayne, First Artillery, who will designate such Cadets to assist him as have heretofore received instruction in a gymnasium.

The gymnasium referred to in the above order was prepared in the riding hall of the old Academy, and here exercises were conducted daily, Saturdays excepted, from 4 to 5 o'clock. The day following the above order another was issued excusing the members of the first class from attending this drill. The reason for this is not quite clear, but it is probable that it was decided that they did not require it, as they received sufficient exercise during instruction in fencing, that being a first-class subject till 1852, when it was made a part of the fourth-class course. Gymnastic instruction was continued until the spring drills began, March 15. There are no records available from which the character of the work, its results or its duration, may be gleaned. It is doubtful, judging from the crudeness of it all, if this new departure in the training of Cadets recommended itself very highly to those in charge. It was a beginning, however, upon which all that has since been accomplished in that line at the Academy is based. When the present riding hall was completed in 1855 a large portion of the basement of the academic building was converted into a gymnasium. The appliances and apparatus were crude and limited both as to usefulness and number; but yet the wedge had been entered, and from year to year the need of a suitable gymnasium became more apparent. Lieut. J. C. Kelton, afterwards Adjutant-General of the Army, was placed in charge of gymnastics from 1856 to 1861.

The administration which first recognized and introduced gymnastic training as an essential part of the training of

future army officers stands unique, as the following order testifies, in being, it is believed, the only one in the history of the Academy to encourage Cadets to indulge in athletics by special orders:

SPECIAL ORDERS, }
No. 120. } NOVEMBER 2, 1847.

As a means to healthful and manly exercise during the suspension of drills, the Superintendent requests the Cadets to form themselves into cricket clubs, and, with a view to perpetuating such clubs at the Academy, suggests that they take appropriate names. Such clubs are much in vogue in the British service, and are considered highly conducive to physical development.

As another means of recreation during the winter, it is intended to arrange the riding and fencing halls for gymnastic and other exercise, during the evenings of the week between parade and call to quarters.

The cricket clubs were formed and the game, under the direction of Mr. Francis Newlands, for many years chief clerk to the quartermaster, was indulged in during the fall of that year. Cricket, however, has never appealed to the young American, and it is not surprising that the game lasted only one season.

Regular instruction in gymnastics was discontinued in 1861, and from then until 1882, when it was again resumed, Cadets were permitted to use the gymnasium as they saw fit. The attendance was regular and insisted upon, but everybody was allowed to choose the form of work which appealed to him, the chief object being to keep busy, regardless of everything else. As a rule the officer in charge was present and it was his duty to see that all were employed.

In 1882 the fallacies of such a system of training became so apparent that an effort was made to put the instruction upon a systematic basis. The reconstruction of this feature was intrusted to Lieut. E. S. Farrow, Twenty-first Infantry, who continued in charge until 1884, when he was relieved by Lieut. Henry Kirby, Tenth Infantry. It is no reflection upon these gentlemen to state that from the standpoint of a professional there was but little system in the course pursued by them, and that it lacked many of the fundamentals of a rational system of training. They accomplished much, however, in breaking up the pernicious practice of permitting

Cadets to use the gymnasium as they saw fit. The work was placed under control, and the results obtained were beneficial instead of, as in many instances before, positively harmful. The gentlemen mentioned above are deserving of great credit, as their efforts brought about a realization of the importance and value of a thorough system of physical training for Cadets.

The system which obtains at the Academy at the present time was inaugurated in February, 1885. From a modest beginning in the old gymnasium, which was a gymnasium in name only, it has gradually grown to its present standing. It has not yet reached the limit of its usefulness and will not reach it until every member of the Corps of Cadets is permitted to enjoy its benefits during the entire time of his stay at the Academy. This is a question of serious import, not only to the individual or the institution, but to the Army and country.

It cannot be gainsaid that the curriculum at the Military Academy requires closer and more constant application than that of any other institution in the world. The constant mental strain which a successful mastery of the subjects taught here makes necessary is fraught with danger to the physical welfare of the cadet. To counteract this, to build up the weak so he may have an even chance with the naturally strong; to quicken the cadet physically, so his intellect may be at its best; to maintain him in a sound, healthful condition, and make him the possessor of a surplus of strength, energy, and vitality, against which he may draw in times of stress, are salient points around which a rational system of physical training must be constructed.

The system of training should be composed of exercises that will promote health, and at the same time develop strength, grace, agility, precision, self-reliance, courage and endurance. It is believed that the present system in vogue at the Academy does this, and does it, too, without for a moment losing sight of its principal and primary object.

The means are a very extensive and thorough course of exercises, every one of which has by long experience proven its worth, every movement having its object. All exercises

of questionable value and those in which there is danger of overexertion or of bodily injury are rigidly excluded.[a]

The fact that the physical training of students has well-defined educational limits is never lost sight of. To endeavor to turn out record-breaking strong men, or skilled acrobats, is wrong in every particular, as such a course is likely to do an irreparable injury to some and does the large majority an injustice by neglecting them. Experts in all walks in life are developed at the expense of many others less favorably endowed than themselves. In educational matters, where the object is to develop a high general standard, such as is the case at the Academy, it is wrong to develop the few at the expense of the many. It is our duty to direct our energies upon the average student, and upon him who is below the standard. This is the principle underlying the training of cadets; the greatest good to the greatest number, and only at the expense of those who can afford it. Those who are already superior to their fellows require but little encouragement, and may be depended upon not to neglect themselves.

There can be no question, however, that like results are almost impossible at any other institution, simply because conditions are not and can not be the same. In the discipline which prevails here, and in the pride and ambition of the cadets themselves in everything pertaining to their personal appearance, the training has powerful allies. Chief among these is discipline, which makes it imperative upon each pupil to carry out to the minutest detail every requirement. Through it the benefits accruing from the training are made permanent; erect and proper carriage and soldierly bearing are insisted upon, and while discipline insists, the exercises not only make this insistence possible, but pleasurable. Surrounded upon all sides by splendid specimens of young manhood, it is only natural that the new comer should find himself impelled to emulate them. He begins to take pride in his personal appearance, and gladly accepts any instruction that will tend toward improving his physique. In time this pride

[a] Experience has proved that the best results may be obtained through the employment of simple exercises and combinations, and that it is the manner in which an exercise is executed rather than the exercise itself which makes training successful.

becomes a habit, and this habit a distinguishing characteristic of a West Pointer.

From 1885 till 1891 this work was conducted in the old gymnasium, which had been equipped with modern appliances. The value of the work having been recognized, the need for better accommodations was keenly felt. An appropriation for a suitable building was made by Congress, and in 1892 the present beautiful gymnasium was completed. This building contains a large gymnasium, 70 by 90 feet, running track, fencing rooms, dressing rooms, bowling alley, office, and a swimming tank, 30 by 60 feet. The equipment of the gymnasium proper is, it is belived, superior to any in the world. All its appliances are sufficiently numerous to facilitate the instruction of large squads, from six to twelve Cadets being able to exercise on the same kinds of appliances simultaneously.

Anthropometric measurements and strength tests have been taken since 1885, and all Cadets requiring special training have a plan of work laid down for them. The following table illustrates, so far as figures can, the effect of the work. The measurements are taken at the beginning and end of the course in gymnastics in October and in May:

Average measurements	Height.	Weight.	Chest normal.	Chest expanded	Waist.	Right upper arm	Right upper arm set	Left upper arm	Left upper arm set
	In.	*Lbs.*	*Inches.*	*Inches.*	*Inches*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
October	68.38	141.60	33.80	35.88	28.23	9.68	11.20	9.54	11.05
May	68.78	147.89	34.92	37.40	28.40	10.80	12.31	10.16	12.30
Gain	.40	6.29	1.32	1.52	.17	.11	1.02	.62	.18

In all some 26 measurements and 7 strength tests are taken of each Cadet. Only the more prominent of the measurements are quoted above.

Strength tests.

Average tests	Pull up.	Dip	Right forearm	Left forearm.	Back.	Legs	Lung capacity.
	Times.	*Times.*	*Pounds.*	*Pounds*	*Pounds.*	*Pounds.*	*Cu. in.*
October	7.11	4.98	122.93	110.44	347.00	478.83	239.79
May	10.40	10.44	138.62	123.29	427.41	620.32	280.13
Gain	4.29	5.49	15.69	12.85	79.75	141.49	40.34

The "pull up" is the number of times a Cadet can "chin" himself; the "dip" how often he can raise his body, by bending his arms as low as possible and again extending them, on the parallel bars. Right and left forearm tests are grip tests; the back and leg tests show how many pounds a Cadet can lift with back or legs.

Outline of the Plan and Scope of the Physical Training of Cadets at the U. S. Military Academy.

At present, and since the introduction of the present methods in 1885, the training of Cadets, so far as it pertains to the regular instruction of gymnastics, is confined to the members of the fourth class.

This class receives instruction in the setting-up exercise immediately upon its arrival here. The daily drills are of forty-five minutes' duration. When the class joins the battalion of the Corps of Cadets, which is about three weeks after its arrival, these drills are discontinued.

Gymnastic work is again taken up on October 1 and ends on June 1, there being three drills, each of forty-five minutes, per week.

Cadets of the other three classes, while not obliged to attend gymnastic or fencing instruction, are encouraged to do so during the suspension of the afternoon drills from November 1 to March 15.

SETTING-UP PERIOD.

From the time of arrival till the battalion is joined, about three weeks. Daily drill, duration forty-five minutes: 1, position of attention; 2, starting position; 3, simple exercises of various parts of body; 4, marching; 5, simple combinations; 6, marching and exercises while marching; 7, running; 8, simple combinations while standing, walking, sitting, and lying down.

First Period.

[From October to January.]

Three lessons weekly, each of forty-five minutes' duration.

FIRST MONTH.

This month's work is entirely preliminary.

1, strength tests; 2, setting-up exercises, simple movements; 3, exercise on chest weights; 4, exercise on intercostal and back and loin machines; 5, running, walking, and exercises in walking; 6, preliminary series on horses and horizontal bars.

SECOND MONTH.

1, setting-up exercises, simple combinations; 2, running, walking, etc.; 3, repetition of preliminary series on horse and horizontal bars; 4, preliminary series on parallel bars, mounts, and rests; 5, dumb-bells and wands.

THIRD MONTH.

1, setting-up exercises, advanced work; 2, running, walking, etc.; 3, first series on club exercises; 4, first series on horses and horizontal bars; 5, preliminary series on rings and vaulting bars; 6, climbing and jumping.

SECOND PERIOD.

[From January to April.]

1, iron wands, dumb-bells and clubs; 2, second series on horses and horizontal bars; 3, first series on parallel bars; 4, first series on vaulting bars and rings; 5, medicine balls, squad work; 6, climbing and jumping.

SECOND MONTH.

1, clubs, second series, bells and wands; 2, third series on horses; 3, second series on parallel bars; 4, second series on rings; 5, contests, wrestling, etc.; 6, jumping and climbing.

THIRD MONTH.

1, clubs, third series, bells, wands, and medicine balls; 2, third series on horizontal bars and horses; 3, third series on parallel bars; 4, second series on vaulting bars; 5, jumping and climbing.

THIRD PERIOD.

[From April to June.]

1, club combinations; 2, repetition and review of all work previously taken with hand appliances; 3, third series on vaulting bars; 4, third series on rings; 5, review of all work done on apparatus.

FENCING.

Baron Steuben in the scheme for the organization of a Military Academy, which he submitted to General Washington in April, 1783, recommended that horsemanship, fencing, dancing, and music be made a part of the regular curriculum. Of these fencing, probably because the use of the sword was considered of indispensible importance to military men, received prompt attention.

The use of the sword has been taught at this Academy continuously since 1816. From time to time the work done by Cadets in this branch of their training engaged the attention of different Boards of Visitors. Thus, in the report for 1823 we find that the sword exercises taught at the Academy at that time were far from satisfactory.

The board for 1832 recommended that the use of the broadsword and lance should be added to that of the foil, and should be well taught as they would improve "the health and appearance of Cadets."

Instruction was confined to the first class until 1852, when it was made a part of the fourth class course. Besides the professional instructors,

fencing was taught by Lieut. H. C. Wayne, in 1843 and again in 1846–47; and by Lieut. J. C. Kelton, afterwards Adjutant-General of the Army. The following is a list of instructors who served at the Academy: Pierre Thomas, 1816–26; Pierre Trainque, 1826–27; Louis S. Simon, 1827–32; Albert Jumel, 1832–37; Ferdinand Dupare, 1837–40; H. G. Boulet, 1840–42; Patrice de Janon, 1846–58, when he was appointed professor of Spanish; Antoine Lorentz, 1858–84; H. J. Koehler, 1885–1902.

During the first century of the Academy's existence only one accident can be charged to fencing. Cadet Carter, in 1837, while fencing with a fellow cadet, was fatally wounded. The button of his adversary's blade broke off and the blade pierced his brain.

The present system of fencing instruction was introduced in 1885. Instruction, which is confined to the members of the fourth class, three times a week, is given in the use of the foil, saber, and bayonet. Owing to the limited time and the large classes it is impossible to impart a knowledge of the refinements of the art to cadets. Enough is given, however, so that those who desire can develop themselves into very fair swordsmen. Besides the regular instruction a voluntary fencing squad is organized every winter for the purpose of developing a team for the intercollegiate fencing championships. The Academy has been represented by teams at the last two of these competitions, winning the team and individual championships at both of them.

The 1902 team was composed of the following Cadets: Strong ('04), Breckinridge ('05), and Nichols ('05). Strong was awarded the individual championship medal. The 1903 team was composed of Breckinridge ('05), Honeycutt ('04), and Scott, W. R. ('04). Breckinridge and Honeycutt were tied for the individual honors. Besides this competition the Cadets met and defeated the following teams in dual meets during the 1902 season: Harvard, Yale, Columbia, Pennsylvania, and Cornell. During the 1903 season they defeated teams representing Yale, Columbia, Cornell, and Pennsylvania.

The following is a synopsis of the work done in fencing by the fourth class during the year:

Instruction in fencing is given to members of the fourth class only. Classes are divided into three sections, and each section receives three lessons per week, of forty-five minutes each. Sections number from forty to fifty members, depending upon the size of the class. All work is, therefore, class or squad work, every movement being executed simultaneously by all members. The following is the plan of instruction.

FIRST PERIOD.

[From October to December.]

FOILS.

Three lessons weekly, each forty-five minutes.

I.

A. Lesson without weapon in single rank: 1, guard; 2, calls; 3, advance; 4, retreat; 5, extension; 6, lunge; 7, combination of above movements.

B. Lessons without weapon in double rank: 1, guard; 2, calls; 3, advance, 4, retreat; 5, extension; 6, lunge; 7, combination of above movements.

II.

A. Lessons with weapon in single rank: 1, explanation of parts of foil, and lines of attack and defense; 2, guard; 3, recoveries; 4, advance and retreat; 5, arm extension; 6, arm and leg extensions; 7, lunges; 8, combinations of above movements; 9, simple parries; 10, simple thrusts; 11, thrusts and parries in combination with advance and retreat.

B. Target practice: Lunging at a mark with: 1, straight lunges; 2, straight lunges in connection with advance and retreat; 3, straight lunges, parrying before lunges; 4, same, parrying after lunge; 5, same, parrying before and after lunge; 6, same, advancing and parrying before lunge; 7, same, retreating; 8, same, advancing, parrying, lunging, retreating, and parrying.

III.

Lessons in double rank with weapon (a direct attack and simple defense): 1, explanation of engagements; 2, quarte engagement; 3, tierce engagement; 4, change of engagement, single and double; 5, advance and retreat; 6, change of engagement while advancing and retreating; 7, direct attacks in quarte and tierce, high and low, and simple parries; 8, direct attack, simple parries, and direct reposte.

B. Direct attack and simple defense: 1, disengage; 2, cut over; 3, feint of one, two, and one, two, three; 4, feint in line in connection with above attacks; 5, feint low and deceive low parry; 6, cut over and disengage; same reversed; 7, cut over and one, two; same reversed; 8, cut over, disengage, and cut; 9, feint-in-line, cut, and disengage; also the feint-in-line in connection with other thrusts.

C. Indirect attack, simple parries, and direct or indirect reposte: 1, as above, the one parrying to make a direct straight reposte immediately after parrying; 2, same as above only that the reposte is not a direct one.

D. Counter parries: 1, counter quarte; 2, counter tierce; 3, counter low tierce; 4, counter low quarte; 5, indirect attack parried by counter parries or by simple and counter parries; 6, indirect attack parried as above with direct or indirect reposte, when indirect the reposte to be parried with counter or simple parry; 7, combination of two or more thrusts

at command, or at will; 8, double, parried by counter and simple parry; 9, double, parried by two counters; 10, double and disengage, parried by counter and two simple parries, or by counter, simple, and counter; 11, double and one, two, parried as above, or by counter, two simple, and counter parry; 12, reverse double, parried by simple, counter, and simple parries.

The above movements with direct or indirect reposte.

E. Beat, glide, and press: 1, above movements in connection with direct and indirect attacks, parried by simple and counter parries; 2, combinations at command and at will.

F. Time and stop thrusts: 1, explanation and practical application of above thrusts.

G. Salute.

SECOND PERIOD.

[From January to March.]

SABER.

Two lessons per week, duration as above.

FOILS.

One lesson per week.

Foil fencing is continued throughout the year, the work consisting chiefly of combinations of the more difficult order, executed at command or at will.

SABER.

A. Single-rank exercises with saber: 1, moulinets; 2, guard, advance, and retreat; 3, cuts; 4, parries; 5, cuts and parries combined; 6, advance and retreat in connection with cuts and parries.

B. Double-rank exercises with saber: 1, engagements, and change of engagement; 2, simple cuts and parries; 3, simple cuts and parries and direct reposte; 4, simple feints and parries; 5, simple feints and parries and direct reposte; 6, simple feints and parries and indirect reposte; 7, double feints and parries; 8, double feints and parries and direct reposte; 9, double feints and parries and indirect reposte; 10, combinations at command or at will; 11, at will.

THIRD PERIOD.

[From March to June.]

BAYONET.

Two lessons per week, duration as above.

FOILS AND SABERS.

These alternate on the third day, and the work consists of combinations executed at command or at will.

BAYONET.

A. Single rank without rifle: 1, guard, advance, and retreat; 2, front and rear pass; 3, change of guard forward and backward; 4, volts; 5, leaps and side stepping; 6, lunges; 7, combinations of the above.

B. Single rank with rifle: 1, repetition of all the above movements; 2, parries and thrusts; 3, blows with the butt; 4, combinations of the above movements.

C. Double rank with rifle: 1, engagements and changes; 2, direct attack and parries; 3, indirect attack and parries; 4, the same with direct and indirect reposte; 5, combinations; 6, at will.

SWIMMING.

Lieut. J. C. Kelton, in 1858 and 1859, made an effort to have swimming made a part of the Cadets' summer drill; in fact, he gave instructions, which were, however, discontinued when he was relieved. In 1883 the matter was again taken up, but the work lacked system and little was accomplished. The present system began in 1885, and since then Cadets have been compelled to attend swimming, no matter to what class they belong, until they accomplish the test which qualifies them and excuses them from further instruction. This test consists in swimming for at least ten minutes with the breast stroke. When it is considered that at least 70 per cent of those who report here can either not swim at all, or fail in the test, the importance of this work is manifest. From 1885 till 1894 swimming instruction was conducted at Washington Valley; since then it has been given in the tank in the gymnasium

RIDING.

Equitation engaged the attention of those in authority at the Academy from the beginning, but owing to the expense this would entail upon the Government, it was many years before their wishes were considered. Horses, too, were not supplied for the artillery drills until about 1840, Cadets being compelled to drag the pieces about by hand.

The first data bearing on this subject is contained in the report of the Board of Visitors for 1819. The subject is brought to the notice of Congress and the War Department in a recommendation for an appropriation of $1,020 for the construction of a riding shed, the employment of a riding master, and the hire of six horses.

Congress did not think well of this scheme, modest though it was, and the question of equitation at the Academy was not again officially mentioned till 1826, when the Board of Visitors recommended "that a plain building suitable for gymnastical exercise, which will serve at the same time for a riding school and fencing school," be erected.

Thirteen years later, in 1839, the old academic building, in the basement of which provision for riding had been made, was completed, and

the War Department ordered a detachment of Dragoons to the Academy. They arrived in June, 1839, and it is from that time instruction in riding at the Academy dates, it having been continuous since that date. The present riding hall was completed in 1855.

The following is a list of riding masters who served at the Academy: James McAuley, 1839–42; H. Hershberger, 1842–48; F. R. O. de Béville, 1850–52. McAuley and Hershberger had been sergeants of cavalry in our Army; de Béville was a French riding master. Since 1852 the instruction has been intrusted to officers of the Army. Instruction in riding is, at present, a part of the first, second, and third class courses.

DANCING.

As has been stated before, dancing was one of the accomplishments recommended by Baron Steuben in his scheme for the organization of a Military Academy, but it was not recognized officially as a part of the regular training of cadets until about 1823.

In 1817, at the request of the cadets, the Academy's first sword master, Pierre Thomas, was permitted to organize a voluntary dancing class, and this class was continued until about 1823, when instruction in dancing was made compulsory. A famous master from Boston—Papanti—was engaged to instruct cadets during their summer encampment, an arrangement which has remained unchanged to the present day.

The inaccessibility of West Point, owing to the meager transportation facilities and the fact that society dancing was an accomplishment not at all common with a people who had sterner duties to perform in the development of a young nation, put the possibilities of hops in which ladies participated out of the question. As a result, cadets were compelled to practice dancing among themselves. The company streets were converted into hop rooms where impromptu country dances were instituted.

Many well-known instructors of dancing were connected with the Academy for longer or shorter periods since dancing has been recognized. The one to whom most credit is due, however, is Mr. L. W. Vizay, who occupied the position of teacher of dancing for a period of twenty years, when he resigned in favor of his son, R. W. Vizay, the present instructor.

So far as can be discovered, dancing instruction has always been confined to members of the third and fourth classes, the first class instruction being voluntary. Lessons are given daily, their duration being three-quarters of an hour, the period of instruction extending from July 4 to August 28.

WEST POINT VS. YALE, 1902.

ATHLETIC SPORTS AT THE U. S. MILITARY ACADEMY, 1840-1902.

By Captain RICHMOND P. DAVIS,

Artillery Corps, U. S. Army—United States Military Academy, 1887.

The whole test of the worth of any sport should be the demand that sport makes upon those qualities which in their sum we call manliness.—*Roosevelt.*

THOUGH the Military Academy has just completed the first century of its history, it is only during the last decade that the Cadets have indulged to a considerable degree in any form of athletics. From modest beginnings in 1890 our athletic development has been so rapid that to-day the cadet teams are in the first rank of excellence, and in the ethics of sport occupy a position second to none. These results are but the natural outcome of conditions at the Academy, for the basic principles upon which the success of the institution mainly depends became the determining cause in our athletic development.

It has been my good fortune to have been intimately connected with athletics at the Military Academy since 1891, and from visiting teams I have uniform expressions to the effect that games with the cadets are always looked forward to as fair, manly, and clear-cut types of sport for sport's sake.

From the very beginning of organized sport the directors of athletics have had fair play as the watchword, and effort has been made to instil into the members of each and every team the fine sentiment of the following quotation:

Who misses or who wins the prize
Go lose or conquer, as you can;
But if you fail, or if you rise,
Be each, pray God, a gentleman.

Appreciating thoroughly the maxim "mens sana in corpore sano," and realizing the value of athletic games in accomplishing this, it is hard to explain the tardy development of athletics at the Military Academy.

For the last hundred years Cadets have been drawn from the same walks of life, and innately the American boy of fifty years ago was the same as the American boy of to-day—full of life and action and only too prone to spend in outdoor games time that should be devoted to work.

A full appreciation of this latter characteristic no doubt was largely instrumental in causing the early controllers of our destiny to so hamper any attempts at athletic games with rules, regulations, and restrictions as to cause a natural death, but so it was until the beginning of the last decade. Why it was so is hard to comprehend, for every movement of a cadet is so regulated that excess is impossible, and the proper balance between work and play a matter of easy adjustment by anyone who appreciates that old saying: "All work and no play makes Jack a dull boy."

Certain spasmodic attempts at various athletic games during the years before 1890 illustrate the desire of the cadets for outdoor amusement, and the prompt withering in each case of the athletic sprout well illustrates the impossibility of athletic development under the then existing conditions. The year 1890, however, marks the dividing line between the unrecorded and recorded periods of our athletic history.

There were present at the centennial in June, 1902, graduates dating back to 1842, and an unusual opportunity was thus offered to learn what was done in athletics at the Academy during the last fifty years of the unrecorded period.

The usual answer to my first query was to the effect that athletics amounted to nothing, and in many cases was accompanied by a shrug of the shoulders which, being interpreted, meant: "I do not approve of the modern conditions." The facts are the academic courses are more extended now than formerly, and yet we have time for athletics without infringing upon the Academy work.

As compared to the present, athletics in the early days truly amounted to nothing, but back in the forties we find evidence of the athletic spirit in spasmodic attempts at sport with a round football; lines were drawn, sides chosen, and the ball kicked all over the field, and the side won which succeeded in kicking the ball across the opponents' line. In the

words of one of our retired officers, "There was in the game not much science but lots of exercise." This sport at frequent intervals extended over a number of years.

About 1850 there was a little cricket, but it seems to have taken no hold. Shortly after this a poorly equipped gymnasium was prepared in the end of the old riding hall under the Academy Building; with slight extensions this gymnasium was used until 1893, when the present one was completed. Prior to 1890 gymnastic exercise and training can not be considered as having been an important factor in the duties or pleasures of Cadets.

Between 1860 and 1870 there was a little town ball and slight symptoms of baseball, but no regular games. Just after the civil war considerable interest was manifested in boating, especially about 1868–1870, and at one time it seemed probable that organization in athletics such as now exists might be a possibility. The various classes subscribed for boats, class contests were authorized, and Cadets were allowed to row upon the river during recreation hours. Unfortunately, early in the seventies, some one took undue advantage of the permission, and, instead of disciplining the individuals concerned, there was a sweeping interdiction of the rowing privileges, and what might have been the beginning of organized athletics received a death blow.

Exercise with a round football in the manner of the earlier days, spasmodic efforts at baseball, if a bat and ball could be procured on a Saturday afternoon, and tennis under conditions prohibiting even an approximation to excellence were found during the last fifteen years of the unrecorded period. These were games in dress coats, as under no circumstances could a cadet appear in any other dress beyond the confines of the area. Such were the conditions more than ten years after regularly organized sport had become an important factor in eastern university life.

Baseball being a game familiar to nearly every boy, the implements to play it being few and inexpensive, and classes being natural rivals, it is in class baseball contests that organized athletic games naturally found their beginning.

An old score book of a series of baseball games between

the classes of 1891 and 1893 furnishes the first authentic record of our recorded athletic history. There was thus in 1890 the beginning of active athletics at the U. S. Military Academy; at last the dormant athletic spirit was to have a chance, but only after it was well developed at most of the progressive institutions of learning.

A full recognition at this time by the authorities of the real value of the gymnastic part of the course of instruction had resulted in obtaining an appropriation for a new and well-equipped gymnasium. The importance and value of gymnastic instruction carried with it a realization of the great benefits to be derived from athletic sports, which would give both exercise and diversion during recreation hours.

It was but a step from organized class games to match games with outside teams, and we find that the following euphonious aggregations of players tried conclusions with the Cadets in the summer of 1890, viz: The "Merriams," of Philadelphia; "Sylvans," of New York, and "Atlantics," of Governors Island.

The cadets won two of the games and the other was a tie. These games were not scientific exhibitions but they are of great interest as they were the foundation for an athletic career which has not only been of vast benefit to the individuals who have taken part in the games, but has added vastly to the prestige of the Military Academy.

The interest elicited by the games was shortly increased to full intensity by a challenge from the cadets at the Naval School to play a game of football. This challenge came toward the end of October, and though few of our men knew the shape, intention, or purpose of a football, Michie and Prince organized a team and the game was arranged for November 29, 1890. On that auspicious date we met the enemy and became theirs by a score of 24 to 0.

We had only two men who had ever handled a football, and several who had never seen one. But little, save pluck, could have been expected of our team; there was plenty of pluck, but it was only half the fight. Our men lost manfully, and there was burnt into their souls a determination

which was to mean much in our athletic development. Both officers and cadets were from that day bent upon retrieving the disaster, and unusual effort was devoted to developing a team the following year.

The game was played on the field that we use to-day, in the southeast corner of the grass plain, the only spectators being the officers and cadets of the post, with a few (hardly a hundred) visitors from a distance.

What a contrast with to-day's Army and Navy game, for for which 28,000 tickets are distributed with 28,000 additional people clamoring for tickets that can not be supplied, and at which there is exhibition of scientific football which ranks with that of Harvard and Yale. Such has been the change in twelve years, and it indeed speaks volumes for our system.

The baseball in 1891 consisted of some class games and two games with the Manhattan Athletic Club. The football was somewhat more extended, but very meager as compared with that of to-day. Games were played at the Academy with the following teams: Rutgers, Tufts, Stevens Institute, Fordham, and Princeton Second. Of these Rutgers was the only victory, but some of the other games were hard fought. On November 28 our team met the Naval Cadets at Annapolis and signally retrieved the defeat of the previous year by the score of 32 to 16. Michie (class '92) was captain of the Military Academy team, and deserved the great credit which was accorded him both as a player and captain. H. H. Williams, of Yale, who has been of vast service in our athletics, came down from Newburgh occasionally and coached the team; he was also a very important factor in our second very signal victory over Annapolis, namely, in 1899, when the score was 17 to 5. All of us who are interested in Academy athletics are much indebted to this our pioneer coach who launched us upon the Yale system of play, to which we have adhered to this day. The funds for this year were contributed by the cadets and a few officers on the post. The games were little talked of generally, and some of the officers who reported for duty in September did not even know that there were to be games until after the first one was played; but the players

and those actually in contact with the team had all season been using their best endeavors to have a team to retrieve the defeat of the year before, and they were amply rewarded.

Defeat stimulates in a way and likewise victory; after the Annapolis game more general interest was manifested. Officers and cadets began to realize that old Alma Mater had really branched out in a new field. As a consequence more and better baseball and football games were arranged for 1892. The results of the year were not, however, as good as desired; we were not able to obtain satisfactory football coaches, and our season closed disastrously with a defeat by the Navy, the score being 12 to 4. Increasing interest and observation of this season showed the great need of organization for control and support of athletics to obtain the best results; the outcome was the formation of the Army Officers' Athletic Association to encourage athletics at the Military Academy and throughout the Army, and of the U. S. Military Academy Athletic Association for the direct control of the Academy teams. Time has proven the great value of these organizations without which our athletic success would simply have been impossible. The Army Officers' Athletic Association was organized with the usual officers of such organizations and representatives for the following sports: Football, baseball, tennis, and general athletics, the duties of each representative being to supervise and encourage his particular sport.

One of the first results of the formation of the associations was the organization of track teams, so that in 1893, in addition to baseball and football games, there were track events. The first field day was held on April 18, each class being represented by a team of five men.

The events and winners were:

Event.	Winner.	Year.
100-yard dash	Timberlake	[illegible]
120-yard hurdle race[a]	Timberlake	[illegible]
	Hinkley	[illegible]
Putting 16-pound shot	Dallam	[illegible]
Running high jump	Timberlake	[illegible]
Standing broad jump	Hinkley	[illegible]
Standing hop, step, and jump	Sturtevant	[illegible]
220-yard hurdle race	Hinkley	1896
Standing high jump	do	[illegible]
Running broad jump	Timberlake	[illegible]
Pole vault	Hyer	1893
440-yard race	Reisinger	[illegible]

[a] Dead heat.

The class of 1896 won the meet and was awarded a banner, which, with the banners for succeeding years, is hanging in the gymnasium.

The baseball team won three and lost two of its scheduled games, but none of the teams were especially good ones and we can not pride ourselves on the season's results. The football plans were much more ambitious than before. Systematic training and coaching were introduced and the schedule included games with Yale, Princeton, and the Naval Cadets, in addition to those with minor college teams. We were sadly beaten by both Yale and Princeton and lost to Annapolis by a score of 4 to 6.

It was not to be expected that much of a showing would be made against the teams of Yale and Princeton, but a great step in advance was made when we were able to arrange games with them at all. This first Yale game was the beginning of a fast friendship with Yale, which has resulted in a yearly game with the Blue which attracts to our grounds more people than does any other. There seems to be something of a fatality about our playing against Yale, our best game of the season; even in years when we were badly beaten by Harvard and Princeton, we have ordinarily made a good showing against Yale. The following series of scores with her are interesting: 0 to 28; 5 to 12; 8 to 28; 2 to 16; 6 to 6; 0 to 10; 0 to 24; 0 to 18; 5 to 5; 6 to 6. The score of 5 to 12 above is for 1894, which shows that we had a good team that

year. This game and a loss to Brown at 0 to 10 were our two important games. This year marks two events, one fortunate and one unfortunate; the former was securing Mr. Harmon S. Graves, of Yale, as our coach, who has been a most prominent figure in our rapid athletic development. We now fully embarked upon the Yale system of play and have clung tenaciously to it ever since. The second event was the interdiction at Washington upon the recommendation of Colonel Ernst, Superintendent of the Academy, of the game with the Naval Cadets. Football, which may be considered the spinal column of all athletics, thus received a blow which we feared might permanently impair our athletic development, but it only suspended it temporarily.

There is no doubt that a strong desire existed then and still exists on our part to meet the Naval Cadets in athletic contests. They are our natural rivals. The Military and Naval academies are on a different basis from all other institutions of learning, and are therefore usually considered and thought of in a classs by themselves.

The effect of the order was not as bad as it might have been, as there always lingered a hope and belief that the annual championship game would again be authorized; furthermore there was a possibility of arranging yearly games with Yale and Harvard, which would give the necessary stimulus to arouse the cadets to their best efforts. So while regretting the loss of a championship game, we yet pushed ahead with a determination to attain greater success on the athletic fields and rise to a recognized place among the leaders of athletic sports. Eighteen hundred and ninety-four was a disastrous baseball year; we met comparatively weak teams and won only one game. The limited time of the cadets will never permit us to attain that excellence in this sport and track athletics that we do in football. In fact until 1901 our baseball was very mediocre in character; at times there was a good game, but this was the exception and not the rule.

The field day was held in June in 1894 and one day during graduation week has been regularly set aside for it. The events were nearly the same as in preceding years and again

the banner was won by '96, which seemed to have an invincible combination.

After the football game with the Naval Cadets was stopped, the game with Brown University became one of the principal objectives, as it was the last of the season. The important games of the schedule for 1895 were those with Yale, Harvard, and Brown. This year is noteworthy for the first appearance of a Harvard team on our field and a good game we had with a score of 4 to 0 in Harvard's favor the second week in October. This was the beginning of a very interesting series of games which has been interrupted only by a failure to arrange a game in 1896. Finding that our athletics were supported entirely by voluntary subscriptions of officers and Cadets and their friends, Harvard insisted upon paying all her own expenses, and has done so whenever she visits us. Her lead has been followed by the teams from the other great universities, and our games therefore are typical sporting events of the college world. The score with Yale this year was bad, 8 to 28, but the season closed with a magnificent victory over Brown, the score being 26 to 0.

The season's record entitled us to a place at the head of the second-class teams. There was still, it is true, a considerable gap between the "Big Four" (Yale, Pennsylvania, Princeton, and Harvard), but it was much smaller than it had ever been before. King and Nolan of this year's team were among the best players in the country.

A slight falling off in excellence is to be noted in the football team of 1896, the important scores being 2 to 16, 0 to 11, and 8 to 6, with Yale, Princeton, and Brown, respectively. A noteworthy incident is the introduction this year of an indoor meet for gymnastic events in which 25 per cent of the entire corps took part. Similar meets have been held yearly since that date, and are always of great interest.

The class of 1897 won the banner for the field day, in June, and thus wrested the championship from the record-breaking athletic class of 1896.

In 1897 we had a football team second to none. The scores with Yale and Harvard were 6 to 6 and 0 to 10, while Brown, though she had famous halves, Gammons and Fultz, was

overwhelmed by a score of 42 to 0. This is the last time that a Brown team has visited us, and on this occasion came up expecting to win.

A departure in our coaching methods is to be noted. We embarked this year upon the graduate system of coaching, with Mr. Koehler as head coach. This system has worked satisfactorily and is still in vogue. It has been the custom to supplement the graduates' work with the best recognized talent from the great universities with the most beneficial results.

The absence of Brown from the football schedule of 1898 caused the season to close much earlier than usual. Harvard slaughtered us with a score of 28 to 0; the Yale game was fair with a score of 10 to 0, and the season closed splendidly with the Princeton game; it was a tie, the score being 5 to 5, and was played on November 5, just about the time that our team should really begin to develop well.

Six new records were established at the indoor meet and three for the field events in June. The class of 1899 won the field day banner.

Eighteen hundred and ninety-nine marks a new period, for in this year we renewed athletic relations with the Naval Cadets. Through the kind offices of Dr. J. William White, a member of our Board of Visitors, a game was arranged to be played on the grounds of the University of Pennsylvania as the guests of that great Institution. Ideal hosts they made, and the game was, from our standpoint at least, a great success, for we simply outclassed our opponents at every point, winning by the score of 17 to 5. Our football season was a failure up to the last game. We had an end and center left from the previous year which was not a very strong foundation to build upon. We were badly beaten by Harvard, Yale, and Princeton, but redeemed ourselves by the great victory over the Navy team, which has been heralded as the best that the Naval Academy had ever produced.

Colonel Robert M. Thompson, a graduate of the Naval Academy, and Major Theodore K. Gibbs, a civil war veteran, offered a cup to be held by the winners of the Army and Navy game until teams of either institution should have won it three

times, when it was to become the permanent property of the Academy represented by the winning team. By our fine victory we held the trophy for the first year, but hopes of three successive victories were badly shattered in 1900, for we lost to the Navy at Franklin Field by a score of 7 to 11. The sting of this defeat was, however, somewhat tempered by a victory in a baseball game with the Naval Cadets on May 18, 1901, at the Naval Academy. This was the first year that scientific exhibitions in this sport were given by our team. The Lehigh and Seventh Regiment teams were the only ones in a list of nine who won from our cadets during the season.

Nineteen hundred and one was a red-letter year in our football history. The cadets not only played the teams of the "Big Four," but tied Yale and Princeton, won handsomely from Pennsylvania, and lost to Harvard by a single score in the last minute of play, and won from the best team the Naval Academy has ever produced. No team of any other institution has ever done as much in any year; it may be that there have been teams which could have done it, but the history of it is that none have. With the record of our team up to its Navy game, every one went to the field expecting the latter to be outclassed; but it was not so, and we won only after the hardest kind of a fight. The quality of the ball was first class in every particular and the game redounded greatly to the credit of the Academies. The President of the United States, members of his Cabinet, and other distinguished Government officials were present, in addition to many generals, admirals, the faculties of the University of Pennsylvania and of the Military and Naval Academies.

The usual indoor meet was held, but there was no field day. This year's record gave us a position in the "Big Four" with Harvard, Yale, and Princeton.

In 1902 we find greater diversity of sports than in any previous year, viz, polo, golf, tennis, fencing, track events, baseball, and football.

The athletic season began with fencing tournaments. Our team met teams from Yale, Harvard, Pennsylvania, Columbia, and Cornell without losing a single match. It then went to the intercollegiate meet at the New York

Athletic Club, and won the team match by a large margin and tied representatives from Columbia and Annapolis for the best individual score. As this was our first year in competitive fencing the record was phenomenal.

The indoor meet was very successful, and was followed by a baseball season which did not reach its promise. For the first time in our history teams from Yale and Harvard played here, but outclassed us, and we lost to Annapolis by a score of 5 to 3. The Yale game was played during centennial week, in the presence of the greatest number of alumni that has ever assembled, but it was, from our point of view, a disappointment.

A few days later came the track events. The Class of 1904 won the banner, and the winners in the various events are given below, as this was the centennial meet:

Event.	Winner	Class.
100-yard dash	Hammond, J. S.	1905
220-yard dash	do	1905
440-yard run	Stillwell	1904
120-yard hurdle	Daly, C. D	1905
Hammer throw	Bunker	1903
Putting shot	do	1903
Pole vault	Wilson, A. H	1904
	Dillon	
Running high jump	Carrithers	1903
	Anderson, W. D. A.	1904
Running broad jump	Daly, C. D	1905
Relay race	Classes 1903 and 1905	.....

The Field-day banner was won by the class of 1905.

The football season of 1902 was characterized by the best team we have ever produced. We more than sustained our position as a member of the "big four," and administered to the midshipmen a most crushing defeat at Franklin Field on November 29. The important scores of the season were 6 to 14, 6 to 6, 46 to 0, 22 to 8, with Harvard, Yale, Syracuse, and midshipmen.

During the last ten years some tennis has been played, but no great degree of excellence has been attained by the Cadets.

A golf course was laid out in 1894, extending across the

plain into Fort Clinton and below Trophy Point, but not until 1897 did Cadets take any interest in the game. To-day many of them may be seen upon the course during recreation hours.

Polo is the last game which has been introduced, and rapid progress has been made, but the conditions are such that a great degree of skill can not be acquired.

Through the efforts of General A. L. Mills, the Superintendent, and Colonel Charles G. Treat, the Commandant, some ponies were furnished by the Government, and both officers and cadets constantly play on the flats, where a field has been laid out. Two match games of polo were played this year with Squadron A, National Guard, State of New York, but our men were not allowed the handicaps usual in such games between members of the Polo Association, and, as was to be expected, lost both games by a considerable margin.

Captains Cassatt and Howze really introduced the game a few years ago, but no progress was made, as they tried to play with cavalry horses on the cavalry plain.

Black and gray were adopted as the Academy colors by the Cadet Athletic Association, but were changed in 1898 to black, gold, and gray. These make a very good combination and have since been officially recognized in the Cadet Corps flag, and have also been adopted by the Association of Graduates.

Cadets who distinguished themselves in athletics are entitled to wear a large gray A (for Army). The privilege of wearing the A is restricted to those who play on the Academy teams against three visiting teams in one season or one Naval Academy team, who have broken an Academy record at one of the regular field days, or who have won the prizes for the best athlete and all-around gymnast at an indoor meet.

Those members of our football teams who have been recognized among the foremost players of their time are: Nolan ('96), King ('96), Nesbitt ('93), Scales ('98), Kromer ('99), Romeyn ('99), Smith, W. D. ('01), Boyers ('02), Bunker ('03), Farnsworth ('04), Graves ('05), Daly ('05), Torney ('06). We, of course, have had many other fine players, but those given

above have been recognized as members or substitutes on what is known in the athletic world as the All-American Team.

The data below give the field records, and the scores of the two polo games, of the four important baseball games, of the fencing tournaments, and of the football games.

FIELD RECORDS.

	Seconds.
100-yard dash	10⅕
220-yard dash	22⅘
120-yard hurdle	16¾
440-yard run	52⅕

	Ft.	in.
Running broad jump	21	7
Running high jump	5	7¾
Standing broad jump	9	11¾
Pole vault	10	9
Hammer throw	96	10
Putting shot	37	11¾

POLO.

First game—U. S. Military Academy, 2½; Squadron A, National Guard, State of New York, 9½.

Second game—U. S. Military Academy, 3; Squadron A, National Guard, State of New York, 10.

FENCING.

At West Point, 1902.—U. S. Military Academy, 6; Columbia, 3. U. S. Military Academy, 6; Cornell, 3. U. S. Military Academy, 9; Harvard, 0. U. S. Military Academy, 7; Pennsylvania University, 2. U. S. Military Academy, 4; Yale, 2.

At New York Athletic Club, 1902.—Teams from Columbia, Cornell, Harvard, Naval Academy, University of Pennsylvania, U. S. Military Academy, and Yale were represented at the Intercollegiate Fencing Tournament.

	Percentage.
U. S. Military Academy	0.741
Columbia	.646
U. S. Naval Academy	.629
Cornell	.593
Harvard	.482
Yale	.288
Pennsylvania	.149

BASEBALL.

1901.—U. S. Military Academy, 4; Naval Academy, 3.

1902.—U. S. Military Academy, 3; Naval Academy, 5; U. S. Military Academy, 4; Harvard, 14. U. S. Military Academy, 4; Yale, 15.

Football scores.

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	Total.
U. S. Military Academy				12	18									
Amherst				4										4
U. S. Military Academy					12									
Boston Institute														
U. S. Military Academy														
Brown														
U. S. Military Academy														
Bucknell														
U. S. Military Academy														
Columbia														
U. S. Military Academy														
Dartmouth														
U. S. Military Academy														
Dickinson														
U. S. Military Academy														
Fordham														
U. S. Military Academy														
Franklin and Marshall														
U. S. Military Academy														
Hamilton														
U. S. Military Academy														
Harvard														
U. S. Military Academy														
Lafayette														
U. S. Military Academy														
Lehigh														
U. S. Military Academy														
U. S. Naval Academy														
U. S. Military Academy														
Pennsylvania University														
U. S. Military Academy														
Pennsylvania State														
U. S. Military Academy														
Princeton														
U. S. Military Academy														
Princeton second														
U. S. Military Academy														
Rutgers														
U. S. Military Academy														
Stevens														
U. S. Military Academy														
Syracuse														
U. S. Military Academy														
Staples														
U. S. Military Academy														
Trinity														
U. S. Military Academy														
Tufts														

Football scores—Continued.

	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	Total.
U. S. Military Academy				6	30	16	44						50	152
Union				0	0	0	0						0	0
U. S. Military Academy				4										4
Volunteers				0										0
U. S. Military Academy											6	28	28	42
Williams											0	0		0
U. S. Military Academy			6				12	12	27					57
Wesleyan			0				12	0	5					35
U. S. Military Academy					5	8	2	6	0			5	6	32
Yale				28	12	28	16	6	16	24	18	5	6	183
U. S. Military Academy														1,294
Opponents														411

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